Keeping the Corps: The Continued Relevance of the Corps Echelon of Command

A Monograph

by

MAJ David M. Toczek

U.S. Army

School of Advanced Military Studies

United States Army Command and General Staff College

Fort Leavenworth, Kansas

AY 03-04

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major David Matthew Toczek

Title of Monograph: **Keeping the Corps: The Continued Relevance of the Corps Echelon of Command**

Approved by:

_____   Monograph Director
Robert M. Epstein, Ph.D.

_____   Director,
Kevin C.M. Benson, COL, AR   School of Advanced
    Military Studies

_____   Director,
Robert F. Baumann, Ph.D.   Graduate Degree
    Programs

Report Documentation Page

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE **26 MAY 2004**	2. REPORT TYPE	3. DATES COVERED **-**

4. TITLE AND SUBTITLE **Keeping the Corps: the continued relevance of the Corps Echelon of Command**	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S) **David Toczek**	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **US Army School for Advanced Military Studies,250 Gibbon Ave,Fort Leavenworth,KS,66027**	8. PERFORMING ORGANIZATION REPORT NUMBER **ATZL-SWV**

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
Some decision makers and analysts believe that increased networking and technological advances have increased a commander's span of control, thus allowing for an elimination of the US Army's corps echelon of command. Aside from span of control and joint capabilities concerns, many see the elimination of the corps echelon of command as a means to help alleviate the Army's manning concerns. While in most cases rational thought forms the basis for these possible courses of action, a theoretical construct against which to evaluate them seems lacking. This monograph develops a theoretical rationale for how and for which purposes the Army organized its corps headquarters over the past seventy years and evaluates the capabilities of current corps headquarters against an established set of criteria. This paper's theoretical construct frames the issues surrounding the necessity of the US Army's corps echelon of command in terms of complex, adaptive systems; organizational structure; decision making; span of control; and efficiency and effectiveness. This study concludes that although the current US Army corps headquarters do not completely fulfill the joint force attributes as articulated in the Defense Department's Joint Operations Concepts, the document that outlines how the American armed forces will fight in the future, they do form an integral link between the present division and component commander headquarters. Summary elimination of the corps level of command at this time would place a tremendous burden upon both the echelons above and below and would place at risk operations employing multiple divisions or those requiring extensive planning efforts. Despite the continued requirement for this echelon of command, the US Army should structure its corps training program to focus upon the corps' role as potential joint task force (JTF) headquarters.

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**1**	**76**	

ABSTRACT

KEEPING THE CORPS: THE CONTINUED RELEVANCE OF THE CORPS ECHELON OF COMMAND by MAJ David M. Toczek, U.S. Army, 72 pages.

Some decision makers and analysts believe that increased networking and technological advances have increased a commander's span of control, thus allowing for an elimination of the US Army's corps echelon of command. Other analysts, focusing upon the increased requirement for joint headquarters and the reduced probability of employing numbered armies in the field, argue that service-centric corps headquarters no longer provide the joint force commander with the appropriate capabilities to fight in a truly joint manner. Aside from span of control and joint capabilities concerns, many see the elimination of the corps echelon of command as a means to help alleviate the Army's manning concerns.

While in most cases rational thought forms the basis for these possible courses of action, a theoretical construct against which to evaluate them seems lacking. This monograph seeks to fill this void by developing a theoretical rationale for how and for which purposes the Army organized its corps headquarters over the past seventy years and then evaluating the capabilities of current corps headquarters against an established set of criteria. This paper's theoretical construct frames the issues surrounding the necessity of the US Army's corps echelon of command in terms of complex, adaptive systems; organizational structure; decision making; span of command/span of control; and efficiency and effectiveness.

To provide historical perspective and empirical evidence of how corps headquarters have operated in the past, this monograph includes case studies of corps-level operations from two distinct periods. The first examines selected US Army corps in the European Theater of Operations (ETO) during World War II, a period during which a corps' focus was almost entirely upon operational matters; logistics and administration for the corps was a concern for the army, its next higher echelon of command. By the 1990s, the corps echelon of command had not only retained its responsibility for operational matters, but it had also taken on the responsibilities for operational-level planning, logistics, and administration. The second case study highlights these significant changes through an examination of corps operations during Operations DESERT STORM and UPHOLD DEMOCRACY.

This study concludes that although the current US Army corps headquarters do not completely fulfill the joint force attributes as articulated in the Defense Department's Joint Operations Concepts, the document that outlines how the American armed forces will fight in the future, they do form an integral link between the present division and component commander headquarters. Summary elimination of the corps level of command at this time would place a tremendous burden upon both the echelons above and below and would place at risk operations employing multiple divisions or those requiring extensive planning efforts. Despite the continued requirement for this echelon of command, the US Army should structure its corps training program to focus upon the corps' role as potential joint task force (JTF) headquarters. At a minimum, corps should have assigned sister-service officers to encourage joint, rather than service-centric, thinking and processes. Whether corps disappear entirely in the future or evolve into another type of echelon, the Army should base its process of change upon a theoretical construct and not the personal experiences or intuitions of decision makers or analysts.

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CHAPTER ONE
INTRODUCTION

> The Army has had its same hierarchy of forces – corps, division, brigade, battalion, company – since Napoleon….Now along comes information technology. The impact of information technology in the private sector is to flatten organizations, widen spans of control, [and] be more horizontal, because everyone can very easily have the same situational awareness.[1]
>
>   - Former Secretary of the Army Thomas E. White

Although making their debut during the Civil War and reappearing briefly during the Spanish-American War, the United States (US) Army's corps headquarters have remained on active duty for almost the entire 20th century. Even during the period between the Great War and World War II, when the Army's end strength fell below 120,000 officers and soldiers, the US Army maintained its corps echelon of command. Taking the form of "corps areas," these formations commanded a mixture of Regular, National Guard, and Organized Reserve divisions.[2] Despite its current personnel strength of almost four times that of the Interwar Period, the Army, along with other decision makers, analysts, and observers, is questioning the relevancy of the corps echelon of command in the 21st century.

Some believe, as former Secretary White's comments illustrate, that increased networking and technological advances have increased a commander's span of control, thus allowing for an elimination of a level of command. Technology, so the argument goes, is more than capable of providing today's commanders with near perfect situational awareness of their surroundings and subordinates, thus allowing them to command effectively far more units than is traditionally believed. Other analysts, focusing upon the increased requirement for joint headquarters and the reduced probability of employing numbered armies in the field, argue that service-centric corps headquarters no longer provide the joint force commander with the

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[1] Joe Burlas, "White: Army Needs Better Business Practices," U.S. Army Public Affairs News Release (14 June 2001): 2 [on-line]; available from http://www.dau.mil/pubs/pm/pmpdf01/usa1-ja.pdf; Internet; accessed 29 October 2003.

[2] Russell F. Weigley, *History of the Unites States Army*, Enlarged ed. (Bloomington, IN: Indiana University Press, 1984), 400-401.

appropriate capabilities to fight in a truly joint manner. Aside from span of control and joint capabilities concerns, many see the elimination of the corps echelon of command as a means to help alleviate the Army's manning concerns, a particularly compelling argument when one considers the sheer number of present and projected deployments. Put simply, soldiers and officers freed from a corps headquarters could fill shortages at the brigade and division levels. In each situation, inactivation of the corps headquarters seems to solve troubling problems for the Army, at least in the short term.

While in most cases rational thought forms the basis for these possible courses of action, a theoretical construct against which to evaluate them seems lacking. A survey of the literature surrounding these questions reveals a reliance upon what the Army has done in the past or prognostications of what technology will do for it in the future, but there is precious little discussion or use of theory to justify why a certain organizational form or hierarchy will or will not work. This monograph seeks to fill this void by developing a theoretical rationale for how and for which purposes the Army organized its corps headquarters over the past seventy years and then evaluating the capabilities of current corps headquarters against an established set of criteria. The insights captured within this analysis will form the basis of the monograph's conclusions and recommendations.

This paper's theoretical construct frames the issues surrounding the necessity, or irrelevance, of the US Army's corps echelon of command in terms of complex, adaptive systems; organizational structure; decision making; span of command/span of control; and efficiency and effectiveness. These concepts, when combined with an established and clearly defined set of evaluation criteria, will enable an objective, evaluative framework by which to examine the topic, rather than one based upon the personal experiences or intuitions of the author.

To provide historical perspective and empirical evidence of how corps headquarters have operated in the past, this monograph will include case studies of corps-level operations from two distinct periods. The first will examine selected US Army corps in the European Theater of

Operations (ETO) during World War II. During this period, a corps' focus was almost entirely upon operational matters; logistics and administration for the corps was a concern for the army, its next higher echelon of command. By the 1990s, almost fifty years later, the corps echelon of command had not only retained its responsibility for operational matters, but it had also taken on the responsibilities for operational-level planning, logistics, and administration, thus resembling the army of World War II. The second case study will highlight these significant changes through an examination of corps operations during this period. It will first evaluate the conduct of VII and XVIII Airborne Corps and their roles and responsibilities during the so-called 100 Hours War as subordinate echelons to a higher Army command. As a means to illustrate the role of a corps serving as a joint task force (JTF) headquarters, the second case study will then describe its increased breadth of concern through the example of XVIII Airborne Corps as the core element of Joint Task Force 180 (JTF 180) during Operation UPHOLD DEMOCRACY.

To answer the question of the relevancy of corps headquarters in today's security environment, this study will then outline the current doctrinal underpinnings of corps employment and will assess the current capabilities of the Army's corps headquarters against the established evaluative criteria. In summary, the monograph will offer conclusions and recommendations concerning not only the organization, roles and responsibilities, and training of the corps echelon of command, but it will also offer recommendations as to the relevance and applicability of the established evaluative criteria for those other agencies currently researching this topic.

FUNDAMENTAL CONCEPTS

Although many of the concepts addressed in this work are familiar to most readers, it is useful at this point to establish clear definitions before proceeding in order to preclude confusion

later in the study.[3] The three concepts basic to this study are span of command/span of control, echelons of command, and levels of war. An examination of the study's evaluative criteria will appear in Chapter 2.

Span of command/span of control

Army doctrine defines span of control as "the number of subordinates or activities under a single commander."[4] Yet the same doctrinal manual also distinguishes between command, which is "the authority that a commander in the military service lawfully exercises over subordinates by virtue of rank or assignment," and control, which is "the regulation of forces and battlefield operating systems to accomplish the mission in accordance with the commander's intent."[5] This clear distinction between authority and regulation of forces suggests that there are actually two metrics, and hence, two separate concepts: 1) How many subordinates can one commander make known his orders and intent? 2) How many subordinates can one commander and his staff regulate to ensure mission accomplishment within the stated intent? From these two concepts it follows, then, that span of command refers to the number of subordinates one commander can direct through personal and electronic means. Span of control, on the other hand, refers to the number of subordinates a commander and his staff can regulate in order to accomplish the mission within the commander's intent. As this study will show, technological advances have clearly made these two concepts separate and distinct.[6]

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[3] Reynolds observes that "the most important feature of any scientific term, used to indicate a concept, is the degree of agreement about its meaning, agreement about the nature of the concept." Paul Reynolds, *A Primer in Theory Construction* (Boston: Allyn and Bacon, 1971), 48.

[4] Department of the Army, Field Manual 6-0, *Mission Command: Command and Control of Army Forces* (Washington, D.C.: United States Government Printing Office [USGPO], 2003), 5-24. Joint Publication 1-02, *Dictionary of Military and Associated Terms*, does not define these concepts. Department of Defense, *Joint Publication 1-02, Dictionary of Military and Associated Terms* (Washington, D.C.: USGPO), 490 [on-line]; available from http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf; Internet; accessed 22 December 2003.

[5] Department of the Army, *Mission Command*, 2-2, 3-1.

[6] Doctor Harold Orenstein, Combined Arms Doctrine Directorate, suggested to me the distinction between span of command and span of control and their relationship to technology. Doctor Harold Orenstein, informal discussion with author, 18 September 2003, Fort Leavenworth, Bell Hall.

Echelon of command

Joint doctrine defines echelon as a "separate level of command."[7] For the purposes of this study, echelon of command refers to the functions and staff organizations at a given level of command. This concept does not refer to fixed groupings of subordinate formations or capabilities. Echelons of command include headquarters at the brigade (or combat group), division, corps, Army service component command (ASCC), functional command, joint task force, and regional combatant command (RCC) levels. Echelons of command no longer clearly relate to the levels of war as defined below. Historically, lower echelons of command (usually corps and below) operated almost exclusively at the tactical level of war, while upper echelons of command (usually field armies and above) dealt with operational- and strategic-level issues. With today's information technology and its capability to broadcast images and sounds instantaneously, it is possible that the actions of a single soldier could have strategic consequences.

Levels of war

Joint doctrine defines the tactical level war as that "at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces." The operational level of war is "[t]he level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or other operational areas. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and applying resources to bring about and sustain these events." The strategic level of war is that "at which a nation, often as a member of a group of nations, determines national or multinational (alliance or coalition) security objectives and

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[7] Department of Defense, *Dictionary of Military and Associated Terms*, 173 [on-line]; available from http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf; Internet; accessed 02 November 2003.

guidance, and develops and uses national resources to accomplish these objectives."[8] The levels

of war suggest the capabilities an echelon of command must possess in order to operate at a

certain level. For example, an echelon of command designed, resourced, and trained to operate at

the tactical level may not possess the correct means to plan or conduct operations at the

operational or strategic level.

RECENT LITERATURE

During any discussion of restructuring the Army, one is certain to address Douglas

Macgregor's *Breaking the Phalanx: A New Design for Landpower in the 21st Century*. Written at

the same time that the Department of Defense's 1997 Quadrennial Defense Review was ongoing,

Macgregor sought to offer his perspective of how the Army should be organized. Believing

divisions are too large and too difficult to deploy and to employ in contingency operations, he

argues that permanently task-organized "combat groups" (robust brigade combat teams) should

serve as the largest standing tactical echelon.[9] Above the combat group, he envisions the corps

headquarters as both the next higher command echelon and the responsible agent for providing

the combat groups with the required combat support (CS) and combat service support (CSS)

enablers. With the elimination of the division echelon, the combat group would serve as the

Army's highest tactical organization; the corps, serving as a JTF, would assume the role of the

lowest operational-level headquarters.[10]

Macgregor posits that changing the Army's corps headquarters from service-centric

organizations to the foundations of standing joint task force headquarters (SJTFHQs) facilitates a

joint approach to warfare. Further, he argues, if each of the four corps headquarters are assigned

to the four primary regional commanders (United States European Command [USEUCOM],

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[8] Department of Defense, *Dictionary of Military and Associated Terms*, 520, 387, 505 [on-line]; available from http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf; Internet; accessed 02 November 2003.

[9] Douglas Macgregor, *Breaking the Phalanx: A New Design for Landpower in the 21st Century* (Westport, CT: Praeger, 1997), 75-82.

[10] Ibid., 84.

USCENTCOM [United States Central Command], USFK/CFC [United States Forces, Korea/Combined Forces Command], and USACOM [United States Atlantic Command, now United States Joint Forces Command {USJFCOM}]), those commanders could train them continuously, thus avoiding the uncertainty of which headquarters will work for which regional commander.[11]

To Macgregor, recent technological advances are one reason for the elimination of the division and the resulting increased span of control for the corps, but he cautions that technology alone will not bring about timely and insightful decisions. Commanders possessing advanced command and control systems, while lacking the initiative, the authority, the doctrine, or the information to make the correct decision will still ultimately fail. He acknowledges that "[a]t the very least, flattening the Army's warfighting structure will necessitate a radical revision of current programs for educating and training leaders at every level, especially the operational level."[12] Although this work does not directly address the question of eliminating the corps echelon of command, it does provide a basis for understanding the rationale for flattening the Army's hierarchy to improve flexibility. Also, interestingly, Macgregor accepts without question the need for a corps echelon of command, suggesting that even such an innovative thinker believes that the corps level is still required for the Army's effectiveness.

Writing five years later about the same topic, Huba Wass de Czege and Richard Sinnreich published an Institute of Land Warfare paper entitled "Conceptual Foundations of a Transformed U.S. Army." Echoing Macgregor's beliefs that the brigade should be the largest standing tactical organization, Wass de Czege and Sinnreich soften the argument against the division level of command. Seeing the need for a headquarters to command one to three maneuver brigades and the numerous CS and CSS units necessary to support them in

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[11] Ibid., 151.
[12] Ibid., 88. Unfortunately, Macgregor does not offer any insights as to how the Army should restructure its education and training programs, particularly with regards to the operational level. Macgregor's structure would effectively halve command and training opportunities for its senior officers, since colonels and major generals would no longer command formations.

expeditionary operations, they suggest that the intermediate level of command between the standing brigades and the corps should be a division task force, a tactical headquarters that only serves an operational, and not an administrative, purpose. Modeled after the corps headquarters of World War II, the division task force would be a small command group, capable of conducting multi-brigade operations but reliant upon its higher echelons to synchronize and provide its logistics support.[13]

Like Macgregor, the authors posit that the corps level of command should "become the standard operational echelon of employment."[14] Other than emphasizing increased modularity, Wass de Czege and Sinnreich envision the corps possessing the same capabilities and subordinate CS and sustainment commands as it does currently. Although not suggesting that the corps form SJTFHQs, they do acknowledge the importance of its serving as a JTF headquarters.[15] In most all respects, the paper reflects a status quo with regards to the corps, another possible indication of the need to retain that echelon.

Of the contemporary works addressing the need for the Army's reorganization, one does address the question of the corps' relevancy directly. D. Robert Worley's "W(h)ither Corps?" is a Strategic Studies Institute pamphlet that examines the current corps headquarters and their capabilities. He offers a brief synopsis of the evolution of the US Army corps from the Great War to the present and evaluates the need for the current four corps headquarters against what he perceives to be the current threat to the United States. Unlike the previous two works, "W(h)ither Corps?" does not offer a generic conceptualization of the echelons of command; rather, it outlines specific roles for each of the corps: I Corps, inactivation; III Corps, digital corps or standing joint task force headquarters; V Corps, standing joint task force headquarters (forward); XVIII

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[13] Huba Wass de Czege and Richard Sinnreich, "Conceptual Foundations of a Tranformed U.S. Army," The Land Warfare Papers, Number 40 (Arlington, VA: The Institute of Land Warfare, 2002), 33-37.
[14] Ibid., 34.
[15] Ibid., 34-35.

Airborne Corps, contingency corps headquarters.[16] Worley does offer practical reasons for the

retention of the corps level of command, if for no other reason than to provide a means to train

lieutenant generals to command and their staffs to operate at the high tactical/operational levels of

war.[17] While this pamphlet does not address the theoretical underpinnings of how a corps

headquarters serves as the translator from the tactical to the operational levels of war, it does offer

a reasoned argument for the benefits of maintaining at least three of the four corps headquarters.

  Although efforts to reorganize the Army have always been ongoing, the current global

security environment, coupled with the near exponential growth rate of technology, have given

added impetus to restructuring initiatives. While several leading defense analysts have focused

their efforts upon organizing tactical-level organizations, they seem to agree that the corps

echelon may still be relevant in today's world. Their arguments, however, seem based upon

experience and intuition and not upon a clear theoretical construct. It is to theory that this

monograph must now turn.

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[16] Robert D. Worley, "W(h)ither Corps?" (Carlisle, PA: Strategic Studies Institute, 2001), 23, 21, 17-19.

[17] Ibid., 13.

CHAPTER TWO
THEORETICAL FRAMEWORK

> Assuming that scientists have completed the task of building a scientific
> body of knowledge designed to describe "things" and explain why
> "events" occur…what should such a body of knowledge be useful for?
> Most people would probably want scientific knowledge to provide: (1) A
> method of organizing and categorizing "things," a *typology*; (2)
> *Predictions* of future events; (3) *Explanations* of past events; (4) A *sense
> of understanding* about what causes events…(5) The potential for *control*
> of events.[18]
>
>   - Paul Reynolds, *A Primer in Theory Construction*

As highlighted in the preceding chapter, the discussion of how best to organize the Army,

particularly in regard to echelons of command, continues to be of great interest. In most cases, the

descriptions and rationales for why a certain level of command should or should not be retained

are based upon either intuition, or experience, or both. These arguments provide compelling

evidence in the form of available units or capabilities and perceived benefits resulting from a

certain course of action. What they do not offer, however, is an abstract theoretical construct of

why a certain outcome would result from the recommended changes. This chapter focuses upon

framing the question of echelons of command in terms of complex, adaptive systems;

organizational structure; decision making; span of command/span of control; and efficiency and

effectiveness. It also outlines the evaluation criteria necessary to test whether the corps level of

command can still meet the needs of today's Army in the current security environment. While not

all the theoretical constructs build directly upon one another, they do relate in some fashion and

contribute to an overall understanding of how and why an organization in the abstract forms and

functions as it does.

When correctly presented, theory provides several insights that experience or intuition

usually cannot. As Reynolds suggests, it presents predictions of future events and explanations of

past events, but most importantly, it conveys a sense of understanding of events themselves. He

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[18] Reynolds, 4.

also points out that the more abstract the theory, the more universally applicable it is. One thing theory cannot accomplish, however, is the absolute proof of a certain event or causality. Instead, it can only raise the degree of confidence in the theory's validity, because it is impossible to test all possible conditions against the empirical evidence.[19] This higher degree of confidence encourages its acceptance throughout the scientific community. As a result, this monograph does not attempt to prove a specific theory of organization; rather, it seeks to raise the reader's level of understanding of why organizations form and function as they do, thus allowing theory to inform the case studies and the recommendations and conclusions drawn from them.

COMPLEX, ADAPTIVE SYSTEMS

Over the past ten years or so, scientists and theorists have become increasingly drawn to examining complexity theory. This shift in approach is no minor matter. Over the last 300 years, scientists have relied upon a Newtonian construct of predictable, linear outcomes to explain how our universe works. Complexity theory, on the other hand, suggests that outcomes and results are neither simple nor linear. Given the increased complexity of warfare in the 21st century, a brief examination of complexity theory and how it relates to military echelons of command is both appropriate and useful.

M. Mitchell Waldrop, in introducing his work on complexity, describes an entity known as a complex, adaptive system. This system is complex, in that "a great many independent agents are interacting with each other in a great many ways."[20] Another characteristic of such a system is that the independent agents tend to self-organize spontaneously in a manner that suits them. This self-organization may be either conscious or unconscious, but one clear result of this process is that it is unpredictable and may result in a formation or outcome that no one anticipates. Finally,

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[19] Ibid., 137.

[20] M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York: Touchstone, 1993), 11. Waldrop does not offer a definition of "system." Dörner defines a system as "a network of many variables in causal relationships with one another." Dietrich Dörner, *The Logic of Failure: Why Things Go Wrong and What We Can Do to Make Them Right*, trans. Rita and Robert Kimber (New York: Metropolitan Books, 1996), 73.

this type of system is adaptive, meaning that it is always changing to adjust to its environment. The most intriguing characteristic of complex, adaptive systems is the ability to "somehow…bring order and chaos into a special kind of balance. This balance point – often called *the edge of chaos* – is were [*sic*] the components of a system never quite lock into place, and yet never quite dissolve into turbulence, either."[21] In essence, complex, adaptive systems are always changing, always reorganizing, always interacting with their environments.

The complexity inherent in this type of system dramatically affects how one might institute change within it. Clearly, the interaction between a large number of independent agents and variables makes determining a conclusive outcome from any given set of conditions difficult. Because complex, adaptive systems are not linear in nature, a seemingly minor change could result in a completely unintended and drastic outcome, what Edward Lorenz terms the "butterfly effect."[22] To understand complex systems better, then, one must not only account for the number of variables at play, but one must also have a grasp of the causal (or correlational) relationships between those variables.[23] A change that fails to recognize a critical variable or a causal relationship could have an outcome well out of proportion to the magnitude of the original change.

The idea of a complex, adaptive system is more than an academic construct; it relates practically to military echelons of command. More than ever before, the Army reflects the characteristics of a complex, adaptive system. Units and individual officers and soldiers interact throughout the world on a daily basis. In the absence of (or in spite of) formal organization, they self-organize to accomplish their missions. These units and individuals, like the variables

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[21] Emphasized in original. Waldrop, 12.

[22] L. Douglas Kiel, *Managing Chaos and Complexity in Government: A New Paradigm for Managing Change, Innovation, and Organizational Renewal* (San Francisco: Jossey-Bass Publishers, 1994), 6. Lorenz had been modeling meteorological data on a computer, and for one iteration, he modified the variables from six decimal places to three. He found that the resulting forecast from a seemingly insignificant change was nothing like his previous projections. This discovery led him to "[t]he metaphor that the flapping of a butterfly's wings in Tokyo may cause a tornado in Oklahoma [thus] represent[ing] the surprising and unpredictable behavior that nonlinear dynamic systems can generate." Ibid., 7.

[23] Dörner, 79.

described above, continually adapt to their environments and their situations, often resulting in unintended consequences, both positive and negative.

These consequences are the result of decisions: decisions to organize, decisions to adapt, decisions to act. They may be simple or all encompassing in nature. Simple decisions, like adding another staff officer or another Maneuver Control System (MCS) computer in a command post, could have dramatic, and unintended, consequences for echelons above and below that headquarters. At the same time, the elimination of an echelon of command could have far-reaching effects as well, particularly given the nonlinear nature of these types of systems. While this discussion does not suggest that the potential risks resulting from unintended consequences of actions should always preclude change, it does highlight the requirement to identify as many variables as possible to ensure a better understanding of the possible outcomes.

ORGANIZATIONAL STRUCTURE

Complexity theory has recently become more influential in describing how organizations function and interact both within and without, but perspectives that are more traditional still offer insights that remain useful and appropriate. In his discussions of organizational theory, Henry Mintzberg, Cleghorn Professor of Management Studies at McGill University, frames the structure of an organization in terms of six discrete parts. The operating core forms the basis of the organization and comprises the work force. At top of the organization is the strategic apex, the location of the overall manager, president, or other senior decision maker. Between the operating core and the strategic apex is the middle line, those managers necessary for both workers and other managers. These three parts form the formal "chain of command" of an organization. Yet in any large organization, there are two other groups that are essential to its success. The technostructure is composed of analysts and other specialists that advise and assist the strategic apex and the middle line in controlling the performance of the operating core. There is also a support staff that provides other internal services like postal or life support. Binding and

surrounding these five parts is the organization's ideology (or culture) that includes its values,

traditions, and beliefs. Outside the organization is the external coalition of owners, unions,

government agencies, and all other groups that seek to influence the organization from without.[24]

(See Annex A, Figure 1.) Although Mintzberg does not use this language, the model he describes

tends to resemble a complex, adaptive system in that the agents all interact with one another.

At this point, it is useful to relate Mintzberg's model to the corps echelon of command.

The strategic apex in this context would be either a JTF or a component command. The middle

line comprises a corps and its subordinate divisions. The operating core comprises the divisions'

brigade combat teams and separate formations. The corps and division staffs form the

technostructure; the corps and division headquarters companies are the support staff. All are

bounded by the Army's service and joint culture. (See Annex A, Figure 2.) The formal and

informal relationships between the units and individuals add to the level of complexity of the

organization.

The difference in approach between complex, adaptive systems and Mintzberg's model is

that the latter offers a direct linkage between what an organization wishes to accomplish and what

its design should be. He offers six discrete coordinating mechanisms that organizations may use

to synchronize their work efforts. Of particular interest to this study are the direct supervision and

standardization of work processes coordinating mechanisms. Direct supervision involves the

intimate involvement of the strategic apex in directing the activities of the operating core.

Standardization of work processes, on the other hand, involves the technostructure's directing the

operating core through a system of procedures or instructions. Although most organizations rely

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[24] Henry Mintzberg, *Mintzberg on Management: Inside Our Strange World of Organizations* (New York: The Free Press, 1989), 98-101. This model of six parts differs only in the addition of ideology from his earlier work. Henry Mintzberg, *Structure in Fives: Designing Effective Organizations* (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1983), 11.

upon all six coordinating mechanisms, they tend to rely upon one more than the others do.[25] (See

Annex A, Figure 3.)

Mintzberg's insights concerning coordinating mechanisms have a direct impact upon the

examination of military echelons of command. Removal of an echelon of command in this

context equates to the reduction of the size of the middle line. The strategic apex, in its efforts to

ensure the same level of production, can take one of two approaches. It can rely upon the

mechanism of direct supervision. In this instance, the strategic apex becomes increasingly

involved in the day-to-day operations of the operating core, an approach that seems to run counter

to this study's evaluation criteria of being decentralized (see below). On the other hand, the

strategic apex could rely upon the technostructure's use of the standardization of work processes

mechanism. In this case, the technostructure would most likely require additional resources

(personnel, equipment, and/or time) to control the operating core effectively. With the current

defense establishment's emphasis on decreasing the size and number of staffs, this option is also

unattractive. Further, an increase in standardization across the operating core does not support the

requirement for the Army to operate in today's extremely complex environment.

This is not to say that Mintzberg cannot offer insights into what the Army must keep in

mind as it continues to examine its echelons of command. Although designed with commercial

enterprises in mind, Mintzberg's model provides not only a theoretical construct of organizational

structure, but it also suggests how an organization might react or compensate for changes to its

structure.

DECISION MAKING

One concept that influences span of command/span of control and links it to

organizational structure is that of decision making. Several studies have examined and posited

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[25] Mintzberg, *Mintzberg on Management*, 101-103. The other four coordinating mechanisms are
mutual adjustment (informal communications within the operating core), standardization of outputs,
standardization of skills, and standardization of norms. Ibid., 101.

models of deliberate decision making, and while they directly speak to headquarters staffs and the military decision making process (MDMP), they do not address this process in a time-constrained environment. If technological advances provide commanders with the ability to make decisions in an ever-decreasing amount of time, then it seems appropriate to rely upon a theory that focuses upon naturalistic decision making, a process that relies upon experience and intuition rather than deliberation and rational thought.

One such theory is called recognition primed decision making (RPD). In this model, a decision maker experienced in the field possesses the capability to reach a solution to a problem quickly without deliberating or comparing multiple options. If a solution does not fit the circumstances, the individual immediately discards it and develops a different approach. Because the decision maker is searching for the first workable solution and not the best solution (a process called satisficing), there is no need for comparison, thus resulting in the process requiring less time.[26]

While RPD takes considerably less time than a deliberate decision making process and does not rely upon comparisons between options, it does require the individual to think through how a certain action will take place. For example, a rescue worker may intuitively know that a certain piece of equipment will almost always be required to free someone from a wrecked vehicle if the vehicle's roof is caved in, but because not all vehicles collapse in the same fashion, the rescue worker may still have to think through or imagine how to position the piece of equipment to effect the rescue. In this situation, the rescue worker would go through the steps mentally, a process that Gary Klein terms mental simulation, or the "ability to imagine people and objects consciously and to transform those people and objects through several transitions, finally picturing them in a different way than at the start."[27]

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[26] Gary Klein, *Sources of Power: How People Make Decisions*, rev. ed. (Cambridge, MA: MIT Press, 1999), 20, 30.
[27] Emphasis in original. Ibid., 45.

In keeping with George Miller's suggestion that an individual's ability to process information is limited by some finite number of discrete items (see below), Klein also points out that there is a limit to how much a person can accomplish through mental simulation. Through his studies, Klein argues that an individual can process only three objects or moving parts accurately through six steps or processes.[28]

Klein's conclusions concerning decision making directly impact the issues of span of command/span of control. If a commander relies upon RPD as a means to make decisions faster than his opponent does, then the number of major subordinate units cannot exceed three, and he cannot visualize those three units passing through more than six movements or positions. If warfare continues to be an exceedingly complex undertaking, and there is every indication that this will remain the case, then increased technological capabilities, while providing commanders with more information, still cannot overcome the human limitation of mentally simulating only three objects.

SPAN OF COMMAND/SPAN OF CONTROL

Klein's discussion of mental simulation and its limitations upon span of command/span of control offers a point of departure in examining this issue in more depth. The concepts of span of command and span of control run through the very heart of all military leadership training. If one were to ask any junior non-commissioned officer what an acceptable span of control is for any operation, he or she will invariably respond, "Three to five." Indeed, the basic unit in the Army, upon which all other formations are built, is the fire team. A unit comprising four individuals (one leader, three followers), it is the epitome of a triangular formation, as are its parents, the platoon (three line squads), the company (three line platoons), the battalion (three line companies), the brigade (three line battalions), and the division (three ground maneuver

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[28] Ibid., 52. Klein also suggests that greater experience allows an individual to "chunk" several steps into one, thus allowing the individual to process more steps without going beyond the limitation of six iterations. This approach, however, sacrifices detail and accuracy; if the mental simulation is too abstract, it might not offer the individual much in the way of a solution. Ibid., 52-53.

brigades). While many will point to the inherent flexibility of such organizations in conducting maneuver warfare, the theoretical reasons behind "three to five" are actually more compelling.[29]

As discussed in Chapter 1, span of command and span of control are two separate and distinct concepts. Arguably, with today's technology, there is no longer a limit to a commander's span of command. As long as a commander has the ability to make known his intent and to ensure that subordinate units have access to his orders, then he can effectively command his units. With video-teleconferencing, a commander no longer has to be physically present in a subordinate's command post; the subordinate commander and his staff can see their higher commander clearly on a screen and can observe his tone of voice and body language as he relates his intent. Use of a "white board" can enable that same commander to highlight areas on a map or draw graphics in a manner that allows everyone in the video-teleconference (VTC) to share the same image. With regards to orders, as long as a subordinate unit has access to a shared drive via a tactical local area network (TACLAN) or a web-based server, it is effectively under a higher echelon's command. In short, at the present time, span of command is limited not by how many subordinate units a commander can see or physically influence but by bandwidth (VTC) or connectivity (orders). Consequently, this study will concentrate upon building a theoretical construct for only span of control, as that concept is the true limiting factor in building an organization.[30]

Although commercial, government, and military organizations had long recognized the utility of limiting the number of individuals who worked for a specific supervisor, it was not until the latter part of the 19th century that businessmen, in particular, began to examine closely the relationships between efficiency and span of control. Focusing upon increasing productivity,

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[29] In maneuver warfare, a triangular formation allows a commander to use one formation to fix the enemy, one formation to envelop the enemy, and one formation to remain in reserve for the purpose of exploitation.

[30] The author is indebted to Doctor Harold Orenstein for his insights concerning span of command and span of control and which concept required a theoretical discussion in this work. Doctor Harold Orenstein, informal discussion with author, 18 September 2003, Fort Leavenworth, Bell Hall.

business managers and theorists in the early 20th century sought to define the optimal number of subordinates per supervisor. Luther Gulick, Eaton Professor of Municipal Science and Administration at Columbia University, recognizes that there are limits to a supervisor's mental and physical capabilities to control large numbers of workers. In most cases, the "limit of control is partly a matter of the limits of knowledge, but even more is it a matter of the limits of time and of energy. As a result the executive of any enterprise can personally direct only a few persons." Yet the limitations are not only a function of the supervisor's ability, but they are also related to the tasks at hand. In the case that the work is routine, repetitive, and in a single location, perhaps the supervisor could control "several score workers"; diverse, frequently changing tasks conducted by a dispersed work force could significantly drop the number to "only a few." Gulick acknowledges that the variables he describes clearly relate to the number of subordinates a supervisor could control, but he cautions that further scientific research was necessary to define exactly the upper limit of an effective span of control.[31]

One management consultant who offers both an upper limit to an effective span of control and a theoretical justification for it is V. A. Graicunas. Graicunas' approach differs significantly from other examinations of this concept and is so widely accepted that it is still cited today. He argues that span of control is not limited solely by the direct relationships between the supervisor and his subordinates. Instead, the two additional types of relationships (the direct relationships between the group and the cross relationships between the subordinates) are even more critical to determining how many subordinates a supervisor can control. In charting these relationships, he found that additional subordinates arithmetically increase the supervisor's number of direct relationships but exponentially increase the number of cross relationships between the subordinates. As a result, Graicunas posits that "the number of lateral divisions in each descending level of responsibility should be restricted to a maximum of five and, most

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[31] Luther Gulick, "Notes on the Theory of Organization," in *Papers on the Science of Administration*, ed. Luther Gulick et al. (New York: Institute of Public Administration, 1937, 7-9.

probably, only four." Exceptions to these restrictions are possible; in the case that certain

subordinates do not have to interact with any of the other workers, the number could increase.[32]

Here, then, is the mathematical justification for the Army's belief in "three to five," a theoretical

concept based not upon technology but upon personal relationships between individuals.

The concept of span of control is related not only to relationships but also to how the

human mind processes information. George Miller, in his article "The Magical Number Seven,

Plus or Minus Two," argues that there is a limit to how accurately individuals can assign values

or numbers to specific stimuli, a process called "absolute judgment." After reviewing several

different studies on the subject, Miller suggests that the span of accuracy of most humans'

absolute judgment of one variable is seven iterations or values. A derivative of this statement is

that individuals can process more variables, but at the expense of accuracy. Although the author

does not directly address the concept of span of control of units or individuals, his conclusions

provide a basis for the commonly held belief that there is an upper limit to the amount of

information the human mind can process.[33] Miller's inverse relationship between processing a

greater number of variables and accuracy speaks directly to a commander's ability to remember

and understand several units' tasks, purposes, and statuses in a dynamic and fluid environment.

Not surprisingly, Miller's assertion that there is a finite limit to an individual's ability to

process information has been at the center of ongoing research since his article's publication in

1956. Some researchers have more recently argued that in certain circumstances, such as

increased standardization or similarity of tasks, an individual can overcome Miller's limitation of

seven values. Based upon these conclusions, the U.S. Army Research Institute for the Behavioral

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[32] V. A. Graicunas, "Relationship in Organization," in *Papers on the Science of Administration*, ed. Luther Gulick et al. (New York: Institute of Public Administration, 1937), 184-187. Modern business texts still rely upon Graicunas' work. Edwin Roscoe and Dorman Freark, *Organization for Production: An Introduction to Industrial Management*, 5th ed. (Homewood, IL: Richard D. Irwin, Inc., 1971), 74.

[33] George Miller, "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information," *The Psychological Review* 63 (March 1956): 81, 84, 88, 90. Graicunas' work relies upon a similar construct called "span of attention," the idea that "in any department of activity the number of separate items to which the human brain can pay attention is strictly limited." He cites the span of attention as six, falling squarely within Miller's findings. Graicunas, 184.

and Social Sciences (ARI) set out to establish factors that should guide future "design and development of Army organizations."[34] In essence, span of control is more complex than only processing capabilities of one individual or the number of relationships within the organization. Instead, a wide range of factors influence how many subordinates a commander and his staff can control. In framing its study, ARI lists task characteristics, organizational structure, complexity of environment, unit continuity, technology, individual characteristics, and external organizations as the variables that influence span of control.[35] The study relies upon 44 interviews of combat, CS, and CSS officers serving with III Corps, 2nd Armored Division, 1st Cavalry Division, and 82nd Airborne Division. Its findings demonstrate a strong positive correlation between effective span of control and technology, individual characteristics, and unit continuity and a negative correlation between complexity of environment and external organizations. Interestingly, there is little correlation between task characteristics (weakly negative) and organizational structure (weakly positive).[36] While this study does not offer a clear conclusion as to what the optimal span of control should be, either now or in the future, it does offer some insights into the complexity of designing effective organizations. As Gulick and Graicunas suggest in their writings, standardization (or lack of complexity of environment) allows for a greater span of control. More importantly, the study suggests that given the number of factors influencing effective span of control, a "one size fits all" approach to establishing echelons of command may not be the most efficient, or the most effective, technique.

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[34] Patrick J. Ford, William Mullen III, and Richard Christ, "Effective Span of Command and Control by Echelon in Training and Operational Environments," ARI Research Note 99-03 (Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, 1998), 2.

[35] Ford, Mullen, and Christ, "Effective Span of Command and Control," 3.

[36] Patrick J. Ford, William Mullen III, and Richard Christ, "New Research on Span of Command and Control: Implications for Designing Army Organizations," ARI Research Note 99-09 (Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, 1998), 14.

EFFICIENCY AND EFFECTIVENESS

While the concepts of efficiency and effectiveness are not central to a theoretical construct relating to echelons of command, they do form an integral part of the strategic environment of the US. In most every discussion or public statement that relates to restructuring the Army, the terms "efficiency," and "effectiveness" are certain to appear. For all their frequency, however, there seems to be little understanding of how they relate to military organizations and preparedness, particularly since many decision makers and analysts tend to use these terms interchangeably.

Put simply, efficiency is an objective term that relies upon quantification and calculation to give it significance. It deals with only the tangible or calculable aspects of a given decision or operation. In his discussion of the tension between these two terms, Mintzberg observes that "the root of the problem lies not in the definition…but in how that definition is inevitably put into operation. In practice efficiency does not mean the greatest benefit for the cost; it means the greatest *measurable* benefit for the *measurable* cost. In other words, efficiency means *demonstrated* efficiency, *proven* efficiency, above all *calculated* efficiency. A management obsessed with efficiency is a management obsessed with measurement."[37] While efficiency is not inherently wrong or bad, its inappropriate use or application can have serious repercussions, particularly when it is mistaken for effectiveness.

Effectiveness, on the other hand, does not lend itself to quantification or calculation because it is subjective in nature. *The American Heritage Dictionary* defines "effective" as "[p]repared for use or action, esp. in warfare."[38] As Mintzberg highlights, organizations often marginalize or dismiss intangibles, like effectiveness, when it comes time to quantify results: "In all kinds of organizations, the economic costs – the tangible resources deployed – are generally easier to measure than the social costs – the consequences on people's lives. An emphasis on

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[37] Henry Mintzberg, *Mintzberg on Management*, 331.
[38] *The American Heritage Dictionary*, 2nd College Ed., s.v. "effective."

efficiency thus encourages the attribution of only the tangible costs to the organization; the intangible costs, usually social, get dismissed as 'externalities.'"[39] This tendency to dismiss intangible costs lies at the heart of the tension between efficiency and effectiveness: How does a commander quantify his unit's (or headquarters') preparedness or effectiveness in hard, calculable terms, particularly when there is an emphasis on efficiency (read doing more with less) in personnel and equipment?

The implications for this study are clear. As discussed in Chapter 1, there are many who believe that the elimination of an echelon of command (either corps or division) will result in greater efficiency of the Army's personnel and resources. From a purely mathematical approach, this might, in fact, be the case. However, this approach completely dismisses the "social costs" that Mintzberg highlights. Social costs for a business venture equate to personnel turnover as a result of worker dissatisfaction; social costs for an ineffective military organization ultimately mean loss of lives. As an example, while it might be more efficient for an echelon of command to have nine subordinate units, it might be an ineffective headquarters because it cannot sufficiently control that number of subordinates. Decision makers and analysts must take into account the inherent trade-offs between efficiency and effectiveness, as the price for overlooking their differences is too high.

EVALUATION CRITERIA

A properly constructed scientific theory relies upon concepts (or terms) for its structure. The more abstract (or independent of time and space) the concepts are, the more universally applicable the resulting theoretical construct can be. To give credence to a theory, however, the scientist must compare or test his concepts against empirical evidence that is concrete in nature.[40]

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[39] Mintzberg, *Mintzberg on Management*, 332-333.
[40] Reynolds, 49-53. Reynolds describes the use of operational definitions ("[a] set of procedures that describes the activities an observer should perform in order to receive sensory impressions…that indicate the existence…of a theoretical concept") in measuring concepts. The requirement to establish the existence of this study's concepts is beyond the scope of this monograph. Ibid., 52.

One means of comparison or testing is the use of evaluation criteria in assessing the accuracy of the concepts. Although this study focuses upon the US Army's corps echelon of command, current efforts to bring the Army into a joint operations mindset suggests the use of evaluation criteria that are joint in nature. In speaking to the Eisenhower Luncheon at the Association of the United States Army Convention on 7 October 2003, General Schoomaker's comments support this approach: "We will retain our dominance on land providing the combatant commander with agile, versatile, and strategically responsive forces *completely integrated and synchronized with other members of the joint and interagency team and with our coalition partners*….We are a critical component of this Joint Team. The Army does not fight alone, and *achieving joint interdependence must dominate all future aspects of the Army's culture, structure, and operations* [emphasis added]."[41] It is clear from the Army's senior officer that any evaluation criteria must stem from the requirements of the joint community.

One possible source of evaluation criteria is the Defense Department's "Joint Operations Concepts" (JOpsC), a document whose purpose is to provide "the conceptual framework to guide future joint operations and joint, Service, combatant command and combat support defense agency concept development and experimentation."[42] In its Section 3, JOpsC describes the seven attributes it sees as necessary for the Future Joint Force's ability to conduct operations 15 to 20 years in the future. Of the seven attributes listed, four seem logical candidates for evaluation criteria. The first, fully integrated, refers to a force that possesses a "'joint team mindset' from the combatant command level where it exists today down to the joint task force [JTF] and component headquarters (HQ)." This idea of integration applies not only to equipment and systems, but also to service organization and culture. Further, given the current and future strategic environment,

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[41] General Peter Schoomaker (remarks at Eisenhower Luncheon, Association of the United States Army Convention, 07 October 2003) [on-line]; available from http://www.wpsdc.org/remarks_by_general_schoomaker_at.htm; Internet; accessed 05 November 2003.

[42] Department of Defense, *Joint Operations Concepts* (Washington, D.C.: n.p., 2003), 3 [on-line]; available from http://www.dtic.mil/jointvision/secdef_approved_jopsc.doc; Internet; accessed 7 December 2003.

any joint force must also have the ability to work with and leverage other nations' services, not just those of the US. In short, JOpsC's fully integrated force must provide the joint force commander (JFC) with "a set of inherently interoperable and synergistic joint capabilities."[43] An Army operational or high tactical command echelon, then, must possess not only the materiel necessary to command and control other services' and nations' capabilities, but it must also have an organization and structure that enables employment of those capabilities as well.

The second criterion, expeditionary, refers to headquarters that are "rapidly deployable, employable, and sustainable throughout the global battlespace regardless of …environments and independent of existing infrastructure." This criterion applies to all echelons, either based in the Continental US (CONUS) or forward deployed.[44] The third criterion, decentralized, allows forces to operate "in a joint manner at lower echelons." Collaborative planning and shared knowledge are the capabilities that will provide commanders "greater autonomy and increased freedom of action at lower levels."[45] Clearly, an Army echelon of command must be deployable and resourced to allow shared knowledge with its subordinate commands, an essential requirement for freedom of action at lower levels.

The final criterion is decision superiority, "the state at which better-informed decisions are arrived at and implemented faster than an adversary can react." Inherent within this attribute is the ability to gain and maintain information superiority through information operations; shared situational awareness; and intelligence, surveillance, and reconnaissance (ISR). In this sense, decision superiority involves more than the commander simply seizing the initiative away from his opponent by making decisions more quickly. Today's technology clearly provides the ability to collect, transmit, and store more information than any commander can possibly need or

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[43] Ibid., 14-15. The requirement for digital integration between the US and its allies/coalition partners is of serious concern. A recent Rand study identified this separation between American and allied armies' digitization as a "critical gap." Michelle Zanini and Jennifer Taw, "The Army and Multinational Force Compatibility" (Santa Monica, CA: Rand Arroyo Center, 2000), 20.

[44] Ibid., 15.

[45] Ibid., 15-16.

understand. Rather, the keys to information superiority as the means to decision superiority are the organizations and systems required to analyze and present the relevant information.[46]

Because JOpsC focuses upon the joint forces of the future and not just the headquarters that will command them, it does not address the critical evaluation criterion of span of control. As discussed above, although there is a clear separation between span of command and span of control, span of command no longer seems to be the limiting factor to an echelon of command. For that reason, span of control, the number of subordinates a commander and his staff can regulate in order to accomplish the mission within the commander's intent, will serve as this study's final evaluation criterion.

CONCLUSION

Theory should not only provide predictions for future events and explanations for past events, it should most importantly provide a sense of understanding of those events. Recent discussions of reorganizing the Army's echelons of command have seemingly relied almost exclusively upon intuition and experience to justify rationales for action without providing much understanding of why those rationales are so. The theoretical concepts discussed above provide that needed sense of understanding. Although they do not all emphasize the same aspects of organization, they do provide insights into why organizations form and function as they do. Further, they also offer considerations for analysts and decision makers as they grapple with the topic of echelons of command.

While complexity theory is far broader than the issue of levels of command, it does contribute the idea of a complex, adaptive system. Such systems are not only exceedingly complex, but they are ever-changing in that they continually adapt and self-organize. Changes to

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[46] Ibid., 16. The other three joint force attributes that this paper will not employ as evaluation criteria are networked (Any headquarters, regardless of echelon, will require this capability.), adaptable (An evaluation of force mix is not relevant to this monograph; the criterion of fully integrated better addresses the ability of a headquarters to command and control its subordinate units.), and lethal (Lethality does not apply to a headquarters or echelon of command.). Department of Defense, *Joint Operations Concepts*, 15-17.

any of the system's variables may result in dramatic, and possibly unintended, consequences as a result of the nonlinear nature of the system's outcomes. Mintzberg's organizational theory, while possessing fewer variables, still suggests the importance of the interrelationships between its discrete parts. The desire to maintain a certain level of production while reducing an organizational structure may result in the use of coordinating mechanisms to bring the organization back into balance. While there are several types of coordinating mechanisms, the most likely effects of a reduction in the middle line is the requirement for more direct supervision by the strategic apex or standardization of processes by the technostructure, two outcomes that may run counter to the needs of the Army.

Both complexity and organizational theory intimate that the agents or variables make decisions, a topic Klein's RPD model directly addresses. Built upon the premise that experienced decision makers recognize feasible courses of action without comparison, RPD suggests a limit to the number of items a person can mentally simulate. This limitation links directly to the construct of span of control. Although some have argued that there is a distinct limit to the amount of information a person can process, others have suggested that standardization of tasks and proximity of subordinates can mitigate that upper limit. In one construct, relationships drive the limitation to the breadth of span of control. Efficiency in organizations directs a larger span of control; effectiveness requires redundancy to allow for tasks that fall outside of the scope of standardization.

These theoretical constructs serve to inform the reader of considerations relating to echelons of command and to provide a bridge to the established evaluation criteria. Because the Army will clearly continue to operate in a joint environment, JOpsC's attributes of fully integrated, decentralized, expeditionary, and decision superiority, when coupled with span of control, seem to capture the requirements of the Army's echelons of command in the future. For these criteria to offer any insights, one must measure them against empirical evidence. Two such

case studies of corps operations in World War II and the 1990s offer a means to examine that

empirical evidence.

CHAPTER THREE
CORPS OPERATIONS IN WORLD WAR II

> The *corps* is primarily a tactical unit of execution and maneuver. It consists primarily of a headquarters, certain organic elements designated as corps troops, and a variable number of divisions allotted in accordance with the requirements of the situation.[47]
> - Field Manual 100-15, *Field Service Regulations: Larger Units*, 1942

The theoretical structure outlined in the preceding chapter provides a means to understand how and why organizations form and function as they do. Testing this structure against empirical evidence in the form of case studies will serve to raise confidence in the applicability of theory to decisions concerning the Army's current echelons of command. Although corps headquarters have been standing organizations within the Army since 1917, the corps headquarters of World War II provide the first true glimpses of modern complexity at the high tactical, and perhaps low operational, level of war. In some respects, the distances traveled by some of the corps in France during World War II remain the standard against which many observers and analysts compare contemporary operations.

Before examining the US Army's corps of World War II, it is appropriate to review quickly the evolution of the corps level of command. European armies by the late 18th century had grown to such size that military theorists began to suggest grouping regiments into larger organizations to ease the burden of command. Although France had established standing divisions and experimented with grouping them into corps by the 1790s, the organization that most closely resembles the modern conception of a corps stemmed from the directives of Napoleon Bonaparte. In 1800, Napoleon ordered the establishment of the *corps d'armée*, a standing organization of infantry, cavalry, and artillery units.[48] His purpose behind such organizations was to group the arms into self-contained tactical units that could fight on their own

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[47] Emphasis in original. War Department, Field Manual 100-15, *Field Service Regulations: Larger Units* (Washington, D.C.: USGPO, 1942), 56-57.

[48] Robert Epstein, *Napoleon's Last Victory and the Emergence of Modern War* (Lawrence, KS: University Press of Kansas, 1994), 15, 17-18, 23-24.

for approximately 24 hours. By moving his corps along separate axes but separated by no more than one day's march from one another, Napoleon had developed a tactical system that still forms the basis of most of the world's standing armies. By the middle of the 19th century, almost every European army on the continent was organized with corps headquarters commanding divisions.

Although an ocean away from Europe, the US Army was not isolated from the changes occurring on the Continent. During the American Civil War, both the Union and Confederate armies organized their field armies into subordinate corps.[49] With the reduction in forces after 1865, the Army did not possess corps headquarters again until the Spanish-American War near the turn of the century.[50] With the declaration of war against the Central Powers in 1917 and the deployment of the American Expeditionary Forces (AEF), the US Army once again fielded corps headquarters.[51] The experiences of the Great War had a telling effect upon both the Army and Congress. With the National Defense Act of 1920, the Army maintained its nine corps headquarters, the first time in its history that the corps level of command remained on active duty during peacetime.[52] The maintenance of the corps headquarters, although they were not fully resourced, led to the continued development of doctrine for that echelon and the command echelons above it. The doctrine of how the Army intended to organize and employ the corps echelon of command had a direct effect on the performance of the American corps of World War II.

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[49] Robert Epstein, "The Creation and Evolution of the Army Corps in the American Civil War," *Journal of Military History* 55 (January 1991): 21-46.

[50] After the Civil War, the highest tactical echelon of command was the regiment. Above the regiments were departments, districts, and territorial divisions, but they were not tactical commands. Congress authorized the formation of corps in April 1898, and seven were activated for the War with Spain. Weigley, 267, 306.

[51] The American Expeditionary Forces fielded nine corps headquarters, I through IX. Historical Section, Army War College, *Order of Battle of the United States Land Forces in the World War, American Expeditionary Forces: General Headquarters, Armies, Army Corps, Services of Supply, and Separate Forces* (Washington, D.C.: USGPO, 1937), xi.

[52] Weigley, 400.

DOCTRINAL UNDERPINNINGS

The capstone doctrinal manual for echelons above division on the eve of the Second World War was Field Manual 100-15, *Field Service Regulations: Larger Units*. This document outlines the functions and responsibilities of the army group, army, and corps levels of command and the Army's air forces. A generally broad manual, FM 100-15 establishes the linkage between the levels of war and echelons of command. In no uncertain terms, it directs the responsibilities of the army: "The army is the fundamental unit of strategic maneuver. It is the unit which the theater commander or commander of the field forces uses as a basis for planning and executing strategic and tactical operations."[53] By this manual, on the other hand, the corps is strictly a tactical echelon: "The *corps* is primarily a tactical unit of execution and maneuver."[54] Interestingly, the Army's doctrine of 1942 did not formally recognize the operational level of war, as demonstrated by the army's and corps' descriptions. Further, the tactical, rather than the strategic, level seems to dominate FM 100-15, even though the Army considered two of the three echelons in the manual to be strategic commands. Although the manual does devote some of its pages to campaign planning, the corps receives the most attention with thirteen pages, followed by the army (5 pages) and the army group (2 pages), an indication of either the perceived importance of the tactical level of war or the comfort of the author(s) with that topic.[55]

FM 100-15 also establishes the vision of what structure the corps echelon of command would have. As outlined in the manual, the corps possesses little in the way of organic assets, relying instead upon the army to provide necessary combat enablers and administrative support: "[The corps] consists primarily of a headquarters, certain organic elements designated as corps troops, and a variable number of divisions allotted in accordance with the requirements of the situation….Reinforcing elements will be allotted initially to the army, which in turn will make

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[53] War Department, 51.
[54] Emphasis in original. Ibid., 56.
[55] Ibid., 56-68, 51-55, 49-50.

such suballotment to corps as is indicated….As a part of the army, the corps has few administrative functions other than that pertaining to corps troops."[56] With the army as the "largest self-contained unit," Army doctrine envisioned the corps headquarters as a tactical headquarters, focused upon employing divisions and relying upon the army for administrative and logistics support.[57] Those combat, CS, and CSS units that the corps did receive would be attached primarily to the divisions with little remaining for the corps to command. Such a supple organization seemed in keeping with the Army's goal of conducting mobile warfare in Europe. Only the test of combat would prove how effective the Army's doctrine would be.

CORPS OPERATIONS IN THE EUROPEAN THEATER

By the end of the Second World War, the Army fielded 21 corps headquarters that conducted combat operations.[58] In some cases, corps saw combat for almost a two and a half years; in other cases, only a few months.[59] Yet one common experience that all corps shared was the demands placed upon them by the Army's doctrine and the resources they received to operate within that doctrine. While doctrine generally prescribes what an organization should accomplish and how it should be organized, it often falls to a headquarters (or an individual) to establish the tables of organization and equipment (TOEs). Prior to and during World War II, this task fell to General Headquarters (GHQ), later Army Ground Forces (AGF). Dominated by its commander,

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[56] Ibid., 56-57.

[57] Ibid., 51.

[58] In his examination of World War II corps commanders, Berlin cites 22. Robert Berlin, "U.S. Army World War II Corps Commanders: A Composite Biography" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1989), 3. An analysis of Stanton's listing of US Army corps during World War II lists 29 total. Sixteen received campaign credit for the ETO (II, III, IV, V, VI, VII, VIII, XII, XIII, XV, XVI, XVIII, XIX, XX, XXI, XXII); five received campaign credit for the Pacific Theater of Operations (PTO) (I, X, XI, XIV, XXIV). Three headquarters received campaign streamers without inscription (I Armored [ETO, active 09 January – 10 July 1943], IX [PTO], XXIII [ETO]). Two did not deploy (I Armored [active 15 July 1940 – 11 September 1942] and XXXVI); three were redesignated (II Armored to XVIII, III Armored to XIX, IV Armored to XX). Shelby Stanton, *World War II Order of Battle* (New York: Galahad Books, 1991), 6; John B. Wilson, *Armies, Corps, Divisions, and Separate Brigades*, Army Lineage Series (Washington, D.C.: USGPO, 1999), 43-109.

[59] Take for example II Corps, which saw combat in North Africa, Sicily, and Italy (November 1942 – May 1945), as opposed to XXII Corps, which arrived overseas on 30 December 1944 and served to the end of the war. Stanton, 6; Military Intelligence Division, *To Bizerte with the II Corps, 23 April 1943-13 May 1943*, American Forces in Action Series (Washington, D.C.: War Department, 1943), 1.

Lieutenant General Lesley J. McNair, AGF struggled to keep the corps echelon of command

small, both as a means to conserve personnel and to encourage flexibility and rapidity of action.

As McNair observed, "Operations cannot possibly be swift and effective if staffs are large and

clumsy. Lack of staff training and fitness cannot be compensated for by increasing size."[60] One

method in ensuring the staff remained small was by combining command and staff positions. In

keeping with the flexible nature of the corps' task organization, McNair believed that if a corps

did not have an attached a tank destroyer (TD) battalion, for example, then it did not need a TD

staff officer. At the point when the army attached a TD battalion to the corps, the TD battalion

commander would serve as the corps commander's TD staff officer. While this was certainly an

efficient way of limiting the number of staff officers at the corps level, it also increased the

workload on those officers organic to the corps headquarters. Worse, as units moved between

corps, the loss of the commanders doubling as the staff officers meant that there was no one

responsible to ensure that the cross-attachment was accomplished.[61]

In practice, the corps echelon of command operated in the manner envisioned by FM

100-15. As expected, the armies served as providers of logistics, administration, and the

necessary combat, CS, and CSS units to the corps. A brief survey of VII Corps' operations in the

ETO illustrates the flexibility and impermanence of its task organization. From the period 6 June

1944 to 31 May 1945, VII Corps commanded at one point or another 25 different divisions; 21

armored groups or tank battalions; twelve cavalry groups or squadrons; 51 field artillery brigades,

groups, or battalions; 27 TD groups or battalions; 25 engineer groups, brigades, or battalions; and

almost 175 other combat, CS, and CSS units.[62] Without question, the corps of World War II were

[60] Kent Roberts Greenfield, Robert R. Palmer, and Bell Wiley, *The Army Ground Forces: The Organization of Ground Combat Troops*, United States Army in World War II (Washington, DC: USGPO, 1987), 359.

[61] Ibid., 360.

[62] VII Corps, *Mission Accomplished: The Story of the Campaigns of the VII Corps* (np., nd.), 76-80. VII Corps was not alone in commanding so many different units. XII Corps similarly commanded sixteen different divisions; fourteen armored groups or tank battalions; nine cavalry groups or squadrons; and 71 field artillery brigades, groups, or battalions. The numbers for other CS and CSS units are also

what one commander described as "an amorphous, elastic tactical unit that 'expands and contracts according to the allocation of troops from higher headquarters based on the enemy, the terrain and the contemplated missions.'"[63]

The corps' conduct of operations was also in keeping with the expectation that they would be generally tactical in nature and followed FM 100-15's advisory that "corps plans must be projected well into the future; they must envisage action days in advance."[64] Field orders issued by VII Corps in July and August 1944 reflect the focus of a corps' efforts. Issued on 18 July, 1 August, and 13 August, they framed the conduct of VII Corps' portion of Operation COBRA and the subsequent movement across France, a complex undertaking. Clear and concise, the base orders do not exceed five pages, and their emphasis is upon the tasks assigned each division. Little information outside that needed to accomplish the assigned tasks is included, a suggestion of the tactical nature of the orders.[65] Tasks related to administration and logistics appear in separate administrative orders.[66] In essence, they represent corps operations in the ETO at their best: flexible, rapid, and unencumbered by the demands of administration and logistics.[67]

One possible contributor to the brevity of corps orders may be the consistent downsizing of the corps echelon of command by AGF. In July 1942, a corps headquarters was authorized 234 personnel, with an additional 137 personnel providing support from the headquarters company. By January 1945, this number had dropped to 185 and 95 respectively, a net loss of 91

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similar to VII Corps' totals. George Dyer, *XII Corps: Spearhead of Patton's Third Army* (Baton Rouge, LA: XII Corps History Association, 1947), 533-536.

[63] Berlin, 2.

[64] War Department, 62.

[65] Field Order 6, Headquarters, VII Corps, 18 July 1944; Field Order 7, Headquarters, VII Corps, 1 August 1944; Field Order 8, Headquarters, VII Corps, 13 August 1944 (*Battle Analysis, COBRA*, vol. 3, part 1).

[66] Administrative Order 18, Headquarters, VII Corps, 23 July 1944; Administrative Order 19, Headquarters, VII Corps, 26 July 1944; Administrative Order 21, Headquarters, VII Corps, 31 July 1944 (*Battle Analysis, COBRA*, vol. 3, part 1).

[67] By war's end, VII Corps could claim moving 1200 miles across Europe, with its longest advance of 90 miles in one day. Along similar lines, from the period 14 August to 18 September 1944, XII Corps' command post moved ten times over a distance of 457 miles, an average of roughly 50 miles every three days. VII Corps, 76; Dyer, 508.

personnel.[68] Even with the passing of General McNair in 1944, AGF continued to cut the corps authorization, suggesting the Army's desire to prevent certain headquarters staffs from increasing in size, despite the demonstrated complexity of modern warfare in the ETO.

POST-WAR DOCTRINAL CHANGES

Within four months of the end of the war in Europe, the US Army began to inactivate its corps headquarters, and by early 1950, there remained on active duty only three corps headquarters. [69] Yet despite the reduction in the number of corps headquarters, the Army continued to evaluate the functions and form of that echelon of command. United States Forces, European Theater, established the General Board and charged it to "prepare a factual analysis of the strategy, tactics, and administration employed by the United States forces in the European Theater." Of particular interest are Study Number 23, "The Functions, Organization, and Equipment of the Corps Headquarters and Headquarters Company," and Study Number 28, "Supply Functions of Corps." In its analysis, the board found that AGF had erred too far on the side of efficiency, noting a need for increased personnel in the G1 (personnel), G2 (intelligence), and G3 (operations) sections to enable 24 hour operations. Further, based upon the conditions in the ETO, the board also recommended that the corps possess a G5 (civil affairs) section and a significantly increased headquarters company, boosting the total number of personnel well above the 1942 TOE total.[70]

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[68] At the discretion of the theater commander, the corps headquarters could receive an augmentation of 32 personnel, still leaving a shortfall of 59 personnel from the 1942 TOE. Greenfield, Palmer, and Wiley, 361.

[69] V Corps returned to the US in 1945; I and IX Corps inactivated on 28 March 1950, only to return to active duty for the Korean War; the remainder were all inactivated. Stanton shows X Corps and XVIII Airborne Corps on active duty until 1955 and 1951, respectively. However, X Corps inactivated on 31 January 1946, reactivated on 12 September 1950, and inactivated a second time on 27 April 1955. In a different vein, XVIII Airborne Corps inactivated on 15 October 1945 but stood up once again on 21 May 1951. Stanton, 6; Wilson, 43-109.

[70] General Board, "The Functions, Organization, and Equipment of the Corps Headquarters and Headquarters Company," Study Number 23 (CD-ROM. U.S. Army Center of Military History, 8-02), 2, 3, 7. The board recommended the addition of 66 personnel to the corps headquarters and 116 to the headquarters company. Ibid., Appendices 1-15.

One section in which the board did not see a need to increase personnel was the G4. In its conclusions, Study Number 28 states unequivocally that "[n]o major changes [should] be made in the principles governing the functions of a corps within an army." However, it also noted that "Transportation and Quartermaster headquarters elements [should] be made normal attachments to a corps within an army."[71] The board's findings highlighted that while the corps should remain a headquarters focused upon operational matters, it should possess certain organic CSS units, a foreshadowing of how the American concept of the corps would evolve.

The 1950 version of Field Manual 100-15 confirmed the role of the corps as a tactical headquarters with little responsibility for administration or logistics. Little changed from its 1942 predecessor, the 1950 edition once again designated the field army (changed from "army" to avoid confusion with "theater army") as the largest self-contained unit that "has both tactical and administrative functions."[72] The corps, on the other hand, remained the "tactical unit of execution and maneuver" and "ha[d] few service functions." This later version did authorize the corps commander some influence over logistics within his unit. Although doctrine expected the field army to resource the divisions directly, it still stated that the corps commander "normally controls the allocation of ammunition and may control the allocation of any item requiring his control."[73] As with the General Board's findings, the corps commanders of the postwar era were finding themselves moving toward becoming more involved with administration and logistics.

Field Service Regulations, Larger Units, also reiterates the 1942 version's position that the corps possesses no set organization: "The composition of the corps will depend upon its mission, the terrain and weather, and the situation. The flexibility of its organization permits an increase or decrease in the size of the corps…by the attachment or detachment of divisions or

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[71] General Board, "Corps Headquarters and Headquarters Company," 3; General Board, "Supply Functions of Corps," Study Number 28 (CD-ROM. U.S. Army Center of Military History, 8-02), 7-8.
[72] Department of the Army, Field Manual 100-15, *Field Service Regulations: Larger Units* (Washington, D.C.: USGPO, 1950), 55.
[73] Ibid., 60, 15.

reinforcing units *at any time during operations* [emphasis added]."[74] As the examples of both VII

and XII Corps demonstrate above, the Army took to heart its experiences in the ETO and

continued to put its faith in dynamic task organization.

ASSESSMENT

Mintzberg's organizational model offers some insights into how the corps echelon of

command functioned in the ETO. As Mintzberg notes, organizations rely upon coordinating

mechanisms to standardize their output. With a small staff, or technostructure, the corps

commander had to rely upon the mechanism of direct supervision to ensure that his assigned tasks

were accomplished. In most cases, the field orders of VII Corps carried the caveat "confirming

oral orders CG VII Corps issued," a suggestion that the commander, not the staff, was ensuring

compliance.[75]

The small corps staff as a measure to conserve manpower also highlights the often

unintended consequences of a decision. When AGF determined that corps headquarters would

rely upon commanders to double as specialty staff officers, it did not take into account the normal

friction that occurs during dynamic task organization. As described above, an absence of

specialty staff officers increased the burden on the remaining personnel and impacted the ability

of the corps to plan for, employ, and track combat, CS, and CSS units attached from the army. In

many cases, this dynamic task organization within a complex, adaptive system like a corps

encouraged self organization, often time in ways not expected (or encouraged) by the

headquarters, making the task of command and control even more difficult.

The preceding example of the lack of specialty officers is also an example of the tension

between efficiency and effectiveness. From the perspective of AGF, keeping the corps staff small

was certainly a means to promote efficient use of personnel resources. Why have a TD officer on

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[74] Ibid., 57.

[75] Field Order 6, Headquarters, VII Corps, 18 July 1944; Field Order 7, Headquarters, VII Corps, 1 August 1944; Field Order 8, Headquarters, VII Corps, 13 August 1944 (*Battle Analysis, COBRA*, vol. 3, part 1).

the staff if the corps does not have any TD assets? This focus on efficiency, as Mintzberg

highlights, also discounts the hidden costs of efficiency. As described above, the resulting staff

overburden and improper employment of combat, CS, and CSS units was clearly not an effective

means of controlling the corps' assets.

When compared against this study's evaluation criteria, the corps headquarters of the

ETO provide a mixed picture. Without a doubt, they were not fully integrated, nor could they

leverage the joint capabilities available. With the tactical air forces in Europe still a part of the US

Army, one would expect an effective link between those air assets and the corps they supported.

Unfortunately, the exact opposite was the case. During World War II, divisions requested air

support directly from the army above, bypassing the corps between them; their only requirement

with respect to their higher corps was to "inform [the] corps G-3 (Air) so corps AGCP [air-

ground coordination party] can *monitor or intervene* as necessary [emphasis added]."[76] The

inability of the corps commander or his staff to allocate air assets was of concern to the General

Board. As the report on air-ground liaison observes, "Efficient air-ground cooperation requires

ground liaison personnel to be charged with more than the operation of an information center.

This [*sic*] personnel should be charged also with the ground phase planning and operational

responsibility to insure the continuous functioning of the 'combined operations' principle at all

command echelons."[77] Unfortunately, the creation of the US Air Force in 1947 did little to

increase the effectiveness of air-ground coordination by the time of the 1950 version of FM 100-

15, as the early portions of the Korean War were to prove.[78]

Nor did the corps headquarters possess the capability to make decisions faster and better

than their opponents on a regular basis, let alone plan collaboratively or share information. While

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[76] David Hogan, Jr., *A Command Post at War: First Army Headquarters in Europe, 1943-1945* (Washington, D.C.: USGPO, 2000), 99.

[77] General Board, "Organization, Operations, and Equipment of Air-Ground Liaison in All Echelons from Divisions Upward," Study Number 21 (CD-ROM. U.S. Army Center of Military History, 8-02), 33.

[78] Conrad Crane, *American Airpower Strategy in Korea: 1950-1953* (Lawrence, KS: University Press of Kansas, 2000), 60-62.

the maneuver of US Army corps across France in August 1944 offers an example of decision superiority, the fighting in the bocage in June/July 1944, the operations in the Hürtgen Forest, and the opening days of the Battle of the Bulge all effectively argue against the case for consistently possessing decision superiority.

The corps generally approached operations in a decentralized manner, as evidenced by the general nature of their field orders and the broad tasks assigned the subordinate divisions, but that approach was certainly not a result of technology, as JOpsC anticipates. Rather, it appears to stem from the corps' expectations that their subordinate division commanders and their staffs were capable enough to achieve their missions within broad guidelines. Their capability to conduct expeditionary operations is amply demonstrated by Operations TORCH (1942), HUSKY (1943), AVALANCHE (1943), and NEPTUNE (1944). Finally, the corps echelon of command enabled the maintenance of an effective span of control. Throughout most of the European campaign, American corps commanded, on average, four divisions, well within Graicunas', Miller's, and Klein's models.

In the final assessment, the corps headquarters of World War II accomplished their doctrinal functions. Although seen by some as a means to conserve manpower by decreasing their size, the corps perhaps became too small by 1945, as evidenced by the General Board's findings. One perhaps unintended result of the board's findings, as codified in the 1950 FM 100-15, was its increasing responsibility for administration and logistics, functions that VII and XVIII Airborne Corps were directly responsible for almost 50 years later.

CHAPTER FOUR
CORPS OPERATIONS AFTER WORLD WAR II

> Corps are the largest tactical units in the US Army, the instruments by which higher echelons of command conduct maneuver at the operational level….Corps are the link between the operational and tactical levels of war. They plan and conduct major operations and battles.[79]
>
>   - Field Manual 100-15, *Corps Operations*, 1989

The 1950 version of FM 100-15, *Field Service Regulations: Larger Units*, entered the Army's doctrinal inventory in the same month as the North Korean invasion of South Korea. By the time of the amphibious assault at Inchon, the US Army possessed three corps headquarters (I, IX, and X Corps) in theater. The following year, after the United Nations forces had stemmed the Chinese offensives and had begun to move north of Seoul for the second time, Eighth Army had all three corps in the line, just as FM 100-15 had envisioned.[80] With a field army above them to handle the administrative and logistics burden, the corps maintained their focus upon fighting their divisions, just as they had during World War II.

Despite the reorganization of airborne and infantry divisions from triangular to pentomic in 1956 and 1957 and the change back to a triangular configuration in 1962 and 1963, little changed in the realm of the doctrine governing the corps echelon of command.[81] Each of the three revised editions of FM 100-15 between 1963 and 1973 designates the corps as either a "tactical unit of execution" or a "tactical organization" that possesses no fixed composition. Even as late as the 1973 edition, doctrine expected the field army to support the corps, a consistent theme from 1942 to 1973.[82]

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[79] Department of the Army, Field Manual 100-15, *Corps Operations* (Washington, D.C.: USGPO, 1989), 1-0.

[80] Clay Blair, *The Forgotten War: America in Korea, 1950-1953* (New York: Anchor Books, 1989), 875, 898.

[81] As noted above, triangular infantry divisions possessed three infantry regiments. The pentomic division, on the other hand, commanded five battle groups, formations smaller than a regiment but larger than a battalion. Weigley, 537, 550.

[82] Department of the Army, Field Manual 100-15, *Field Service Regulations: Larger Units* (Washington, D.C.: USGPO, 1963), 40; Department of the Army, Field Manual 100-15, *Larger Units: Theater Army – Corps* (Washington, D.C.: USGPO, 1968), 8-1; Department of the Army, Field Manual 100-15, *Larger Units: Theater Army – Corps* (Washington, D.C.: USGPO, 1973), 8-1.

This is not to say, however, that the doctrinal view of a corps' responsibilities remained unchanged from the time of World War II. One important trend was the suggestion that a corps may be employed by something other than an Army headquarters. Although both the 1942 and 1950 editions acknowledge that a corps might have to operate alone, detached from a field army and its accompanying administrative and logistics support, there is no indication of what circumstances might require the detachment, nor what echelon might command it instead of the field army.[83] The 1963 version, on the other hand, designates such a detached corps as an independent corps, an organization that could receive orders from a theater army, an army group, or a joint task force.[84] By 1968, the Army had distinguished the independent corps as one that "operates far removed from the field army" from the separate corps as one that "normally operates adjacent to but apart from the field army."[85] While these short passages may not seem central to the development of the corps echelon, they actually signal a shift in the Army's thinking about employing a corps in combat. With the 1963 version, Army doctrine expected that at some point, a corps could be commanded by a JTF and not only by a service-centric field army, a clear break from its 1950 predecessor.

The expectation that a corps could be either independent or separate impacts the manuals' discussions of CSS units. By 1963, doctrine was directing the assignment or attachment of a support brigade, composed of elements from the field army support command (FASCOM), to the independent corps. This brigade served to supervise and control those CSS units required by the independent corps to sustain itself.[86] In keeping with the addition of the separate corps, the next version of FM 100-15 assigns each independent or separate corps with a corps support command

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[83] War Department, 57; Department of the Army, FM 100-15 (1950), 62.
[84] Department of the Army, FM 100-15 (1963), 38.
[85] Department of the Army, FM 100-15 (1968), 7-30.
[86] Department of the Army, FM 100-15 (1963), 39.

(COSCOM) to fulfill its administration and logistics needs, an organization still familiar to today's Army.[87]

Doctrine's prescription that a corps-level headquarters possess the readiness to operate in an atypical fashion (e.g., not subordinate to a field army) found its validation in Southeast Asia. As the number of American combat units in Vietnam increased through 1965, Military Assistance Command, Vietnam (MACV), established Task Force Alpha as a headquarters capable of commanding multiple divisions. Later designated I Field Force, Vietnam (IFFV), this command had little in common with its World War II predecessor. Operating from a fixed location, responsible for both administration and logistics, and also serving in an advisory role to the Army of the Republic of Vietnam (ARVN), the field force demonstrated the potential of the corps echelon to accomplish missions not envisioned in doctrine.[88] Although some historians tend to portray the Army as an organization focused upon minimizing the impact of Vietnam upon its doctrine after 1973, one cannot dismiss outright the possibility that the roles and responsibilities of the field forces did in some way influence the vision of the corps echelon of command in the 1980s.[89]

DOCTRINAL UNDERPINNINGS

The period between the 1973 and 1989 versions of FM 100-15 saw dramatic changes to the Army's doctrine and organization. In 1976, the Army adopted the Active Defense doctrine, followed by the AirLand Battle doctrine issued in 1982 and revised in 1986. These doctrinal

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[87] Department of the Army, Field Manual 100-15 (1968), 7-30. The 1973 version closely resembles the 1968 version with respect to independent and separate corps and their supporting COSCOMs. Department of the Army, Field Manual 100-15 (1973), 8-25-8-26.

[88] During the war, the Army fielded two field forces: IFFV and IIFFV (redesignated from XXII Corps in 1966). George Eckhardt, *Command and Control, 1950-1969*, Vietnam Studies (Washington, D.C.: USGPO, 1974), 52-54; John Carland, *Combat Operations: Stemming the Tide, May 1965 to October 1966*, United States Army in Vietnam (Washington, D.C.: USGPO, 2000), 49-50, 165-166; Wilson, 101.

[89] In his discussion of the 1976 version of FM 100-5, *Operations*, Paul Herbert states that one of the motivating factors behind its publication was "that it play a major role in expunging the bitter Vietnam War experience." Paul Herbert, *Deciding What Has to Be Done: General William E. DuPuy and the 1976 Edition of FM 100-5*, *Operations*, Leavenworth Papers Number 16 (Washington, D.C.: USGPO, 1988), 1.

changes, coupled with the Army 86 reorganization studies of the late 1970s, brought about the

Army of Excellence organizational design in 1983.[90] The final result of the Army's organizational

changes is articulated in FM 100-15, *Corps Operations*, published in 1989. For the first time ever

in its history, the Army possessed a manual focused solely upon prescribing the role and

responsibilities for the corps echelon of command. Without question, the 1989 version of FM

100-15 is a fundamental break with past conceptions of the corps echelon of command. Portions

are still couched in terms with which an AGF officer of 1942 would be familiar: "*Corps are the*

largest tactical units in the US Army….They plan and conduct major operations and battles." Yet

the corps was now enabling operations at a new level of war for the US Army, the operational

level: "[Corps are] *the instruments by which higher echelons of command conduct maneuver at*

the operational level….Corps are the link between the operational and tactical levels of war."[91] In

addition, for the first time, Army doctrine acknowledged the potential for a corps to serve as a

JTF headquarters: "[T]hey may function as the Army element of a joint task force (JTF) with the

corps commander serving as the JTF commander. As such, corps will have the key role of

translating the broad strategic and operational objectives of higher echelons into the specific and

detailed tactics to achieve those objectives."[92]

      The significance of these changes is immense. With the exception of commanding

subordinate divisions, the corps of 1989 now had little in common with the corps of 1942, or

1950, or even 1973. As the opening chapter of the manual highlights: "The modern day corps is

unlike the corps of the past….Today's corps…is no longer simply a tactical headquarters. It is

now responsible for providing administrative and logistic support for its subordinate units…The

logistic link between its divisions and the corps support command must be considered and the

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[90] John Romjue, *The Army of Excellence: The Development of the 1980s Army*, TRADOC
Historical Monograph Series (Fort Monroe, VA: Office of the Command Historian, US Army Training and
Doctrine Command, 1993), 2-3.
     [91] Department of the Army, Field Manual 100-15 (1989), 1-0.
     [92] Ibid., 1-1.

implications weighed before a division is shifted to another corps."[93] The days of highly flexible, dynamically task organized corps, responsible for little administration and logistics, were officially over. No longer would the divisions look two echelons up for additional CS enablers or sustainment. In accordance with the new version of FM 100-15, everything they could expect to receive would come from their higher headquarters, the corps echelon of command. In addition, those same corps might be called upon to serve as JTF headquarters, a command not even envisioned during World War II.

CORPS OPERATIONS IN OPERATION DESERT STORM

In less than a year after publication, the Army received the opportunity to test its newly published corps doctrine. On 2 August 1990, the Iraqis invaded Kuwait, an action that led to a massive American buildup of forces that culminated in combat operations the following year. Before it could consider how best to evict the Iraqis from Kuwait, however, the US needed to establish a presence in Saudi Arabia to preclude Saddam Hussein from consolidating his territorial gains any farther south. Within one week of the invasion, on 9 August, the first elements of the XVIII Airborne Corps headquarters arrived in Saudi Arabia. With Third Army, the US Army component of Central Command (CENTCOM), focused upon building the logistics infrastructure necessary to support the projected deployment of American forces to the Saudi kingdom, the task of defending it from the Iraqi threat fell to the corps. Throughout the next two months, XVIII Airborne Corps forces grew from one brigade of the 82nd Airborne Division to a multi-national organization of five full divisions (Eastern Area Command, 1st Cavalry Division, 24th Infantry Division [Mechanized], 82nd Airborne Division, and 101st Airborne Division [Air Assault]).[94]

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[93] Ibid.
[94] The Eastern Army Command was a provisional Arab mechanized division. Robert Scales, Jr., *Certain Victory: United States Army in the Gulf War* (Washington, D.C.: USGPO, 1993), 46-49, 93-95.

When the American strategic focus shifted from defending Saudi Arabia to liberating Kuwait, CENTCOM began planning the employment of a second US Army corps by mid-October 1990. The Army staff considered three candidates: III Corps at Fort Hood, Texas; V Corps, in Germany; and VII Corps, also in Germany. Interestingly, despite the doctrinal belief that no corps possessed a fixed organization, the Army staff considered each corps in view of its subordinate units' capabilities and locations vice evaluating individual units and piecing together one task-organized command. Given its equipment status and distance from Southwest Asia, the Army staff ruled out III Corps, and after negotiation with the commander of United States Army, Europe, VII Corps received deployment orders to Saudi Arabia in November. Despite the desire to maintain unit integrity, VII Corps still departed Europe with a combination of its own and V Corps assets.[95] By early 1991, CENTCOM was ready to execute its plan to liberate Kuwait.

Both XVIII Airborne and VII Corps received ample opportunities to demonstrate their ability to command and control subordinate units possessing lethality far beyond that of their World War II antecedents. Prior to the commencement of the ground campaign, both corps conducted tactical movements to the west from their assembly areas in preparation for the attack. In a move reminiscent of something from the ETO, VII Corps moved roughly 135 miles; XVIII Airborne Corps, almost 350. A movement involving nearly 255,000 soldiers and almost 70,000 vehicles, the corps' tasks were further complicated by the crossing of their routes.[96] When combat operations began on 24 February 1991, the two corps were in almost constant motion until the end of the war roughly 100 hours later. Both were in command of four divisions each at the outset, and both were multi-national organizations. XVIII Airborne Corps comprised 6th Light Armored Division (French), 24th Infantry Division (Mechanized), 82nd Airborne Division, and 101st Airborne Division (Air Assault); VII Corps was composed of 1st Armored Division (United

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[95] 1st Armored Division had been in VII Corps; 3rd Armored Division in V Corps. Scales, 128-133; Stephen Gehring, *From the Fulda Gap to Kuwait: U.S. Army, Europe and the Gulf War* (Washington, D.C.: USGPO, 1998), 95-101.
[96] Scales, 146.

Kingdom [UK]), 1st Armored Division, 1st Infantry Division (Mechanized), and 3rd Armored

Division. Unlike combat operations in the ETO, however, DESERT STORM saw only one task

organization change at the corps level: the attachment of 1st Cavalry Division from theater reserve

to VII Corps, giving it a total of five divisions.[97] This difference aside, the corps of DESERT

STORM achieved ground gains comparable to their World War II predecessors. By war's end,

XVIII Airborne Corps had maneuvered its lead elements more than 260 miles; VII Corps, 150

miles, averages of roughly 65 and 40 miles per day, respectively.[98] From an operational

standpoint, the corps of 1990-1991 seemed capable of commanding divisions and other combat

and CS units in an extremely complex and lethal environment.

The ability of the corps to conduct sustainment operations, however, was not so apparent.

In its final report to Congress, the Department of Defense reported the following shortcoming:

"Had the operation lasted longer, maneuver forces would have outrun their fuel and other

support."[99] In both XVIII Airborne and VII Corps, divisions dealt with shortages of fuel and

ammunition, but it is possible that these shortfalls would not have resulted in as drastic an

outcome as the Defense Department's conclusion report suggests.[100] The reasons for the logistics

difficulties during the ground campaign are unclear, but they appear to have resulted primarily

from a lack of haul capability rather than the corps' inability to project the divisions' needs or to

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[97] 1st Cavalry Division began the operation under Third Army control as the reserve and subsequently passed to VII Corps command. Scales, 253; Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, D.C.: USGPO, 1992), 234.

[98] Ibid., 297.

[99] Ibid.

[100] In VII Corps, 1st Armored Division had dropped at one point to only two hours of fuel remaining on hand; in XVIII Airborne Corps, both 101st Airborne Division (Air Assault) and 24th Infantry Division (Mechanized) had difficulty in staying supplied. Tom Clancy with General Fred Franks, Jr., *Into the Storm: A Study in Command* (New York: G.P. Putnam's Sons, 1997), 412; Scales, 257, 305-308. In his postmortem of the war, Lieutenant General William Pagonis, the senior logistician in the theater, takes the opposite position, arguing that "during the course of the 100-hour war, our logistical picture got better and better….One of the criticisms I have heard of our logistical efforts is that several units of the VII Corps almost ran out of fuel. However, this criticism seems off the mark." William Pagonis, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War* (Boston: Harvard Business School Press, 1992), 149-150.

coordinate the movement of those supplies forward.[101] The Army's doctrine had anticipated the

role of the corps in logistics and administration in the 1989 version of FM 100-15, but gaps still

remained in what the Army anticipated the corps headquarters should accomplish.

POST-WAR DOCTRINAL CHANGES

Shortly after the end of the war, the Army first circulated an unedited coordinating draft

of a manual focused upon corps-level tactics, techniques, and procedures (TTP). Completed in

April 1991, FM 100-15-1, *Corps Operations, Tactics and Techniques*, informs its readers that it

"is a 'how to' guide for the employment of the US Army Corps in combat….It directly supports

the doctrinal concepts and principles unique to the corps as addressed in FM 100-15, *Corps*

Operations."[102] Intended as a supplement to the 1989 version of FM 100-15, *Corps Operations*,

FM 100-15-1 may serve as a useful indicator of what the Army was considering the corps should

accomplish in the aftermath of, if not concurrently with, DESERT STORM, particularly since the

next edition of FM 100-15 was not published until 1996, two years after Operation UPHOLD

DEMOCRACY.

The table of contents for FM 100-15-1 is indicative of what type of operations the

Army's doctrine expected a corps to execute. While the majority of topics listed involve what one

would expect a corps of World War II to accomplish ("Types of Offensive Operations," "Attack

through a Defending Corps," "Defensive Patterns," "Counterattack," "River Crossing

Operations," etc.), the doctrinal shift of expecting a corps to accomplish World War II army-level

tasks is also apparent. With logistics topics such as "Reconstitution" and "Corps Support

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[101] The Defense Department final report highlights the fact that "[t]here were not sufficient heavy equipment and petroleum transport…units, even though virtually all in the Total Force were deployed to the theater." Department of Defense, *Conduct of the Persian Gulf War*, 448. By the time that the VII Corps commander discovered the shortages in 1st Armored Division, both 3rd Armored Division and 7th Area Support Group, a VII Corps asset, had already taken measures to make good the shortfall. 101st Airborne Division's difficulties were related to weather; 24th Infantry Division's, to terrain. Clancy with Franks, 413; Scales, 257, 305-308.
[102] Department of the Army, Field Manual 100-15-1, *Corps Operations, Tactics and Techniques*, unedited coordinating draft (Fort Leavenworth, KS: n.p., 1991), i.

Requirements for a Light Division," the increased burden of responsibility upon the corps of 1991 is apparent.[103] Another indicator of the greater expectations of a corps headquarters is the inclusion of a chapter entitled "Corps Contingency Operations." In this chapter, the manual clearly suggests that corps possess the potential to serve as operational-level headquarters.[104] Following DESERT STORM, the model of a corps headquarters as a service-centric organization focused strictly upon combat operations was a thing of the past. Now commanding assigned CS and CSS assets with a larger staff, the corps was approaching, if not surpassing, the level of responsibility of the army of World War II, particularly in the joint arena.

The belief that a US Army corps should be prepared to assume the role as a JTF was only reinforced by the next draft of FM 100-15-1, which appeared the following year. In the revised version, the manual includes an entirely new section that discusses the corps as a JTF headquarters. Although FM 100-15-1 confirms the corps headquarters as capable of serving as a JTF headquarters, it also cautions against taking on too many responsibilities: "When the corps headquarters is designated as JTF headquarters, one of its first actions must be to designate the Army Force headquarters [ARFOR]....The corps can function as ARFOR. However, if doublehatted as JTF and ARFOR, the corps commander and staff would have a split focus; prosecuting the CINC's campaign by synchronizing the operations of the components, and commanding and controlling Army forces in theater."[105] Despite the increased size of the corps staff over its World War II antecedents, doctrine still saw a limitation in its capabilities to serve both as JTF and as ARFOR headquarters, a constraint that was apparent during operations in Haiti in 1994.

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[103] Ibid., iii-iv.
[104] Ibid., iv.
[105] Department of the Army, Field Manual 100-15-1, *Corps Operations, Tactics and Techniques*, coordinating draft (Fort Leavenworth, KS: n.p., 1992), C-24.

CORPS OPERATIONS IN OPERATION UPHOLD DEMOCRACY

By the time of increased tensions in Haiti in late 1993, XVIII Airborne Corps had come

to be viewed as the Army's contingency corps and had already served at the JTF level for two

major operations, POWER PACK in 1965 (the US intervention in the Dominican Republic) and

JUST CAUSE in 1989 (the US invasion of Panama).[106] When XVIII Airborne Corps received

word in January 1994 that it would serve as JTF 180 for the planned forcible invasion of Haiti, it

seemed a logical choice, given its history in the Caribbean region and its ability to employ

airborne forces rapidly. As the situation remained uncertain in Haiti through the spring, the Joint

Chiefs of Staff directed the development of a plan for a peaceable entry option in the case force

was not required. Because XVIII Airborne Corps was focused upon refining the plan for forcible

entry, the corps commander asked for and received permission to allow 10th Mountain Division to

continue planning the permissive entry option initiated by the corps, a burden for which the

division was not prepared.[107]

With matters in Haiti seeming to demand action, XVIII Airborne Corps, serving as JTF

180, embarked members of its staff aboard USS *Mount Whitney*, a US Navy command vessel, on

15 and 17 September 1994, the first time a JTF had commanded a major combat operation while

underway. At the time of departure, JTF 180 still did not know whether it would conduct a

forcible entry (the plan it had refined), a permissive entry (the plan 10th Mountain Division, now

JTF 190, had refined), or something in between. Shortly before executing the planned airborne

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[106] Although named TF 120 (Task Force 120) during POWER PACK, XVIII Airborne Corps actually served as a JTF, since it commanded both Army and Marine forces. During JUST CAUSE, XVIII Airborne Corps served as JTF South. Lawrence Yates*, Power Pack: U.S. Intervention in the Dominican Republic, 1965-1966*, Leavenworth Papers Number 15 (Washington, D.C.: USGPO, 1988), 109; Thomas Donnelly, Margaret Roth, and Caleb Baker, *Operation Just Cause: The Storming of Panama* (New York: Lexington Books, 1991), 75.

[107] Walter Kretchik, Robert Baumann, and John Fishel, *Invasion, Intervention, "Intervasion": A Concise History of the U.S. Army in Operation Uphold Democracy* (Fort Leavenworth: U.S. Army Command and General Staff College Press, 1998), 45, 57-58. 10th Mountain Division's difficulties were not helped by the fact that only five people were read onto the plan when the division's members received the briefing from XVIII Airborne Corps in July; this number later increased to ten in September. Memo, Office of the Assistant Secretary of Defense, subject: OPERATION UPHOLD DEMOCRACY – An Assessment of Intelligence and Communications Systems and Networks (U), 25 January 1996, 1-11.

assault into Haiti, JTF 180 received word that its forces would arrive under a somewhat permissive environment, although aspects of the operation would still require combat forces. On the morning of 19 September, elements of the JTF 180 headquarters, the JTF 190 headquarters, a brigade from 10th Mountain Division, a Marine task force, and special operating forces all landed with little difficulty; the difficult task of adapting to a new situation had begun.[108]

The clear adversarial relationship between XVIII Airborne Corps and the Iraqis during DESERT STORM was not replicated between JTF 180 and the Armed Forces of Haiti (FAd'H). The corps faced the challenge of divorcing the ruling junta from the FAd'H, while at the same time culling out those in the Haitian army who were tainted by their participation in the 1991 coup. Worse, to disband the only functioning public institution in the country would have placed the burden for all order and discipline squarely on the shoulders of the Americans and their multi-national force partners.[109] Remaining aboard *Mount Whitney*, JTF 180 oversaw the efforts of its subordinate commands to ensure peace and stability in Haiti while preparing for the return of President Jean-Bertrand Aristide and the arrival of the multi-national forces to assist with the mission. With the return of Aristide on 15 October and JTF 190 ashore and firmly in command of the situation, XVIII Airborne Corps returned to Fort Bragg after JTF 190's assumption of command on 26 October.[110]

Within two years after the withdrawal of XVIII Airborne Corps from Haiti, the US Army published its most recent version of FM 100-15. Reflecting the influences of the force projection focus of the 1993 version of FM 100-5, *Operations*, and the Army's experiences during the early 1990s, it placed an increased emphasis upon the need for corps to be deployable and to be capable

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[108] Ibid., 2-7; Kretchik, Baumann, and Fishel, 71-79; Ronald Cole, "Grenada, Panama, and Haiti: Joint Operational Reform," *Joint Forces Quarterly* 20 (Autumn/Winter 1998-1999): 63.
[109] In actuality, XVIII Airborne Corps served as a combined joint task force (CJTF), as it had Caribbean Command elements under its control. Kretchik, Baumann, and Fishel, 64-65, 70, 96.
[110] Cole, 64; Office of the Assistant Secretary of Defense, 1-13.

of operating in joint environments.[111] Because the 1996 version of FM 100-15 currently governs

the Army's doctrine for corps operations, the next chapter will examine it in detail.

ASSESSMENT

Theory offers some insights concerning the corps in Southwest Asia and Haiti. The

Army's decision to place CS and CSS units subordinate to the corps and to relieve the corps of

the requirement to seek all its assets from the field army allowed both XVIII Airborne and VII

Corps to deploy to a theater with some administrative and logistics capability. Given the

meagerly resourced nature of Third Army in Saudi Arabia, neither corps could have relied solely

upon its higher echelon to provide CS and CSS support as might have been expected doctrinally

from 1942 to 1989. Whether intended or not, the decision to make CS and CSS units a part of a

corps on a permanent basis enabled the Army to deploy corps on contingency operations with

their own assets. At the same time, this very same decision made it more difficult for the Army

staff to decide which corps to deploy in addition to XVIII Airborne Corps because of the

tendency to view the corps as a complete entity vice an already task-organized unit. The positive

and negative results of a decision, as complexity theory suggests, highlight the need to examine

all possible outcomes to reduce the possibility of an unintended consequence that adversely

impacts or reduces future options.[112]

The concern for maintaining a manageable span of control also influenced the

employment of two corps headquarters. When CENTCOM began planning to liberate Kuwait, it

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[111] The 1986 version of FM 100-5, *Operations*, dedicates only eleven pages to joint, combined, and contingency operations (three, five, and four, respectively). The 1993 version, on the other hand, devotes 23 pages to force projection, joint operations, and combined operations (twelve, six, and five, respectively). Department of the Army, Field Manual 100-5, *Operations* (Washington, D.C.: USGPO, 1986), iii-iv; Department of the Army, Field Manual 100-5, *Operations* (Washington, D.C.: USGPO, 1993), i.

[112] Scales asserts that the task organizing of VII Corps was notable in that "only the Army of the eighties could have built a corps for combat in this manner." If Scales had envisioned the Army of the 1970s as a comparison, then this claim is reasonable, given the Army's state in the aftermath of Vietnam. If viewed against the Army of World War II, with its emphasis on the inherent flexibility of the corps' organization, then one must view this assessment as overstated. Scales, 132.

became apparent that the coalition forces on the ground were not sufficient to accomplish the mission. From this point, the planners framed the courses of action in terms of another corps of three divisions, not in terms of three divisions alone.[113] At this point, six divisions were available for the attack; an addition of three would have boosted XVIII Airborne Corps' number of subordinate divisions to nine. Keeping in mind Miller's magical number seven and Graicunas' four to five, it follows that CENTCOM would be thinking in terms of two corps of four divisions, not one corps of nine divisions.[114]

In terms of the evaluation criteria, the corps of the 1990s were closer to meeting the needs of JOpsC than their World War II predecessors, but they still possessed shortcomings. The corps maintained the ability to leverage joint assets through their accompanying US Air Force elements, and both commanded coalition divisions in an effective manner during DESERT STORM, although in the case of VII Corps, certain aspects of its relationship with 1st Armored Division (UK) was not doctrinal.[115] The Haiti operation, on the other hand, reinforced the need for Army personnel to put aside their "greenness" when serving as a JTF staff. As one Defense Department assessment notes, "corps JTF elements had not 'synchronized' to operate in a joint environment, and 'they will quickly revert to corps operating procedures, if joint leadership is unavailable,'" an indication that even an experienced corps like XVIII Airborne did not meet JOpsC's vision for fully integrated commands.[116]

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[113] Ibid., 127-131.

[114] For simplicity, this analysis overlooks the additional subordinates that XVIII Airborne Corps would have also had under command. In terms of combat power alone, the corps also commanded its Corps Artillery, 3rd Armored Cavalry Regiment, 12th Aviation Brigade (from V Corps), and 18th Aviation Brigade. Counting these elements as well, the addition of three divisions to those already under command would have boosted the span of control for only combat units to thirteen. Department of Defense, *Conduct of the Persian Gulf War*, 234.

[115] Doctrinally, logistics is a national responsibility, meaning that VII Corps should not have had the responsibility to supply 1st Armored Division (UK). Lieutenant General Fred Franks, Jr., commander of VII Corps, agreed to take on the responsibility of supplying the British. Further, both VII Corps and 1st Armored Division (UK) integrated their staffs instead of the usual (and doctrinal) practice of establishing liaison cells in each of the command posts. Clancy with Franks, 210-211.

[116] Office of the Assistant Secretary of Defense, 5-6.

Although both headquarters were deployable, and thus expeditionary, the heavy nature of VII Corps' command post took longer to arrive in Saudi Arabia than did that of XVIII Airborne Corps. In neither case was the corps able to live up to JOpsC's expectation that they operate "independent of existing infrastructure." On the positive side, the embarkation of XVIII Airborne Corps aboard USS *Mount Whitney* and its subsequently proven ability to command while afloat suggests the flexibility of the corps echelon of command. Although both corps relied upon electronic means to transmit orders and share information, the capability for them to collaborate in a decentralized manner still did not exist, as evidenced by the growing gap of understanding of the situation between CENTCOM and VII Corps on the second and third days of the ground war.[117] By the time of UPHOLD DEMOCRACY, XVIII Airborne Corps possessed an increased technological capability to share information, but most collaboration still relied upon trading liaison officers and physically sending planners to other headquarters.[118]

Clearly, both corps possessed decision superiority over their Iraqi foes, as evidenced by the success of the movement of two entire corps to the west without the Iraqis' knowledge and the subsequent conduct of combat operations, but this is a relative comparison. In his final assessment of intelligence gathering, analysis, and dissemination, Brigadier General Robert Scales wrote that "[t]he level of intelligence support for Desert Storm should be viewed as a starting point, not a model for the future."[119] Even with their technological supremacy over the Haitians two years later, XVIII Airborne Corps still had difficulties understanding the situation in that country, primarily because of the lack of appreciation for the Haitian culture.[120] Because JOpsC's conceptual framework is based upon a capabilities-based, vice threat-based, model, decision superiority cannot be relative in the same fashion as it was during DESERT STORM.

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[117] Richard Swain, *"Lucky War": Third Army in Desert Storm* (Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 1994), 247.

[118] Kretchik, Baumann, and Fishel, 63-64.

[119] Scales, 370.

[120] Kretchik, Baumann, and Fishel, 113-115.

With regard to span of control, as discussed above, the corps were well within an acceptable range of effective command.

Both XVIII Airborne and VII Corps ably demonstrated their ability to execute missions in accordance with the doctrine outlined in FM 100-15. XVIII Airborne Corps had initially served as a contingency corps headquarters during DESERT SHIELD; both XVIII Airborne and VII Corps had served as tactical headquarters subordinate to Third Army, their operational link to CENTCOM.[121] Shortly after redeploying, XVIII Airborne Corps again answered the call, only this time as its own operational headquarters as JTF 180. The Army's experiences during the 1990s directly reflected the doctrine it developed, doctrine that still governs how it envisions employing its corps echelon of command.

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[121] Swain suggests that Third Army served as an operational headquarters; VII Corps as a tactical echelon of command. Swain, 247, 332-334.

CHAPTER FIVE

CURRENT CORPS HEADQUARTERS AND STUDY CONCLUSIONS

> Corps are the largest tactical units in the US Army. They are the instruments by which higher echelons of command conduct operations at the operational level….Today's corps will most likely find itself conducting force-projection operations as part of a tailored joint force. When the mission calls for a preponderance of land power, the corps may perform duties as a joint task force (JTF) headquarters….Corps usually link the operational and tactical levels of war. They may link operational and strategic levels of war as well.[122]
>
>   - Field Manual 100-15, *Corps Operations*, 1996

Within three years of the publication of the final version of FM 100-5, *Operations*, and within two years of XVIII Airborne Corps' return from the environs of Haiti, the Army approved the most recent version of FM 100-15, *Corps Operations*. Although published seven years ago, the 1996 version of FM 100-15 still governs the employment of the corps echelon of command.[123] To evaluate fully the current corps headquarters against this study's evaluation criteria, then, one must first look at what roles and responsibilities doctrine has assigned the corps echelon of command.

DOCTRINAL UNDERPINNINGS

Current Doctrine

The 1996 version of FM 100-15 clearly reflects the influence of the 1993 version of FM 100-5. In the introduction, FM 100-15 briefly summarizes the evolution of the US Army corps and ends with the challenge that "corps must posses the flexibility required to execute current warfighting doctrine and be capable of projecting the forces necessary to support unforeseen operations. They must be able to conduct simultaneous operations instead of the sequential

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[122] Department of the Army, Field Manual 100-15, *Corps Operations* (Washington, D.C.: USGPO, 1996), 1-1-1-2.

[123] Seven years between publication dates is not unduly long. There were sixteen years between the 1973 and 1989 versions; thirteen between the 1950 and 1963 versions. Both the 1963 and 1989 versions fell on the heels of dramatic changes in Army doctrine and organization, as discussed in Chapter 2.

operations against an echeloned threat they were expected to face during the cold war [*sic*] era."[124] This brief statement signals an increased burden upon the corps: force projection and the necessity to command in a joint environment.

The manual's first chapter outlines what the Army now envisions the corps to accomplish. Although still "the largest tactical units in the US Army," corps will also serve in "joint and, often, multinational" operations "across the full range of military operations from war to operations other than war (OOTW)." Besides being an echelon of command, the corps may also serve as a force provider, a circumstance in which "considerable assets [are] committed to other commands to support major and lesser regional contingencies."[125] As an echelon of command, FM 100-15 envisions the corps serving as a JTF headquarters, "as part of a larger ground force," a joint forces land component command (JFLCC) headquarters, or an Army forces (ARFOR) headquarters. In the case of the latter three roles (part of a larger ground force, JFLCC, or ARFOR), doctrine states that the corps possesses sufficient organic assets to serve as those commands; in the case of serving as a JTF, "the corps may require augmentation to transition to this joint staff structure. Augmentation may be in the form of a deployable joint cell to provide initial assistance or a major augmentation of personnel and equipment based on the JTF's size and composition."[126]

The manual's stated expectation that a US Army corps should be able to form a JTF is not merely a passing observation. Within the chapter that frames battle command, FM 100-15 provides a section titled "Joint Battle Synchronization." Within this section, the reader will find descriptions of joint staff directories, how a JTF operates, and how a JTF leverages joint fires.[127] Clearly, the 1996 version of *Corps Operations* emphasizes the necessity of the corps echelon to possess the capability and expertise to command in a joint environment. Yet this manual, for all

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[124] Department of the Army, FM 100-15 (1996), xiii.
[125] Ibid., 1-1.
[126] Ibid., 1-3-1-4.
[127] Ibid., 4-20-4-28.

its emphasis upon force projection and joint operations, has not kept pace with the trends of thought that currently influence the Army's evolving doctrine.

Evolving Doctrine

The Army's white paper concerning unit of employment (UE) operations offers a glimpse into how the Army might organize itself in the future. Briefly, the paper envisions flattening the current structure of four echelons (brigade, division, corps, and numbered army) into three. The unit of action (UA), the smallest standing tactical organization, will possess capabilities currently resident within the brigade combat team and division and will focus upon fighting tactical engagements. Commanding a variable number of UAs, the UEx (higher tactical) will serve as the echelon concerned with tactical battles. Above the UEx will be the UEy (operational land), the echelon charged with conducting major land operations. Because the UEx and UEy are modular in nature, they will possess the capability to move up or down in the hierarchy. For example, if necessary, a UEx could command another UEx, just as a UEy could be subordinate to another UEy. In the case that a UEy is directly subordinate to a combatant commander, it also serves as the Army service component command (ASCC). With such flexible command echelons, the paper asserts, the Army can more readily tailor forces to suit the needs of the regional combatant commanders.[128] Although the white paper foresees the elimination of divisions, corps, and echelons above corps by 2020 because "the UEx and UEy will not be improved versions of their predecessors," an evaluation of the current corps echelon of command still remains useful.[129] Even though the UEx and UEy will not resemble the corps, they will still have to accomplish all the functions the corps currently is expected to execute.[130]

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[128] Combined Arms Doctrine Directorate, "Unit of Employment (UE) Operations," initial draft, version 2.1 (Fort Leavenworth, KS: np, 2003), 5-7.

[129] Ibid., 6.

[130] In the case of the UEy, if it serves as the ASCC, then it will shoulder responsibilities far beyond the current expectations of the corps echelon, since the draft manual governing ASCC employment does not envision the corps fulfilling that role. Department of the Army, FM 3-93, *The Army in Theater Operations*, final draft (Fort Leavenworth, KS: np, 2003), 1-18, 1-20, 1-22.

ASSESSMENT AGAINST EVALUATIVE CRITERIA

As one might expect, the present day corps echelon of command approaches the vision of what JOpsC prescribes, but it still does not completely satisfy all the evaluative criteria. From the perspective of being fully integrated, the corps is still lacking in some capabilities. If serving as an Army-centric headquarters, the corps possesses the ability to leverage joint capabilities through the resident expertise in its staff as currently resourced. The special operations coordinator (SOCOORD), an assigned member of the corps staff, provides insight into the capabilities of special operating forces and can serve in a liaison role in the absence of a special operations command and control element (SOCCE). Although not assigned to the corps headquarters, the officers and airmen of the air support operations groups, co-located with each of the Army's four corps, provide the expertise of and linkage to the US Air Force. When serving as a JTF, however, the corps requires significant augmentation. As highlighted after UPHOLD DEMOCRACY, corps tend to revert to Army-centric operations in the absence of other services' personnel. While this is not solely an Army trait, it does suggest the need for corps headquarters to focus upon scenarios involving JTF, rather than Army-centric, command.

While corps headquarters have deployed several times since DESERT STORM, many observers have commented upon the need to lighten the command posts in order to increase their ability to deploy in a short period of time, thus becoming more expeditionary in nature.[131] One of the greatest obstacles to achieving this vision is the requirement for the corps headquarters to command and control sustainment operations as well as combat operations. By the end of World War II, AGF had reduced the size of the corps headquarters, an echelon focused upon operations; at the same time, the army staff, an echelon responsible for operations, administration, and

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[131] In late 2002 and early 2003, the author observed firsthand III Corps' efforts to develop a command post capable of operating in an expeditionary manner in support of Operation IRAQI FREEDOM. Despite the corps chief of staff's guidance to maintain a small footprint, one of the smallest package options still numbered some 500 officers and soldiers, excluding those personnel required for security.

logistics, increased by 152 officers and soldiers.[132] As long as the corps echelon of command remains responsible for planning, synchronizing, and commanding sustainment operations, it may be difficult to lighten the command posts sufficiently for them to be truly expeditionary in nature.

To a certain extent, the corps echelon currently possesses the means to fight decentralized and to maintain decision superiority, but there still remains the potential for it to increase its capabilities even further. As noted above, some analysts are concerned that the Army needs to address the increasing technological gap between its assets that those of its potential coalition partners. For coalition partners to collaborate or to share information rapidly, the Army will have to provide them with trained liaison teams possessing the requisite equipment packages. Even within American units, not all have the equipment on hand to allow the corps to collaborate effectively in a virtual environment. From a span of control perspective, the corps is doctrinally charged to command two to five divisions, well within the theoretical band of effectiveness.[133]

Although the current corps echelon of command has some clear shortcomings when evaluated against this study's criteria, its elimination at this time would place a heavy burden upon both the echelon above it and below it. Without corps headquarters, a land component commander and his staff would find themselves responsible for commanding and synchronizing the effects of several divisions, separate brigades, and separate battalions, well beyond an effective span of control; a division commander and his staff, serving as a JTF, would find themselves commanding and synchronizing the effects of joint forces without the necessary assets, experience, or expertise. The corps is doctrinally focused upon training for the tactical and operational levels of war and provides a vehicle to train general, primary staff, and field grade officers to operate at those levels. With augmentation, it provides the Army with ready-made JTFs, a concept that matches an ARI study conclusion that "[t]he most consistent finding for force projection and OOTW missions stressed the importance of avoiding *ad hoc* structures. To

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[132] At war's end, army headquarters were authorized 358 officers and 712 soldiers. Hogan, 273.
[133] Department of the Army, FM 100-15 (1996), 1-7.

do that, a JTF should be built on an existing DOD unit, augmented as necessary by a specially trained cell."[134] The corps echelon of command represents that "existing DOD unit."

CONCLUSIONS AND RECOMMENDATIONS

This work's two cases studies, when viewed through the lens of theory, offer several insights for those charged with evaluating the relevance and usefulness of the corps echelon of command. The corps headquarters of the ETO and their successors of the 1990s were reflections of the Army's doctrine and vision of warfare. During World War II, the Army expected the corps to serve as a tactically-oriented echelon, reliant upon its higher army for administrative and logistics support. With the recognition of the operational level of war in the 1980s, the Army also expanded the corps' responsibilities and set it upon the path of potentially serving as either a tactical or operational-level headquarters. Its proven flexibility through the 1990s and its demonstrated capability to command joint forces argue for the utility of retaining this echelon of command. These case studies also highlight certain conclusions that should serve as recommendations not only for the Army but the Defense Department as a whole.

Recommendations

No matter how the Army chooses to restructure, whether with brigades, divisions, and corps or units of action and employment, theory must guide the effort. Contemporary articles and white papers offer visions of future structures, but they do not articulate any theory to support their recommendations. Reliance upon theory presupposes understanding why and how events occur; experience and intuition only require historical or anecdotal evidence, not understanding.

Decision makers and analysts must fully consider the effects of any change to the Army's structure of echelons. This is not to suggest that the current corps organizational structure is inviolate, but any ill-considered changes as a result of a desire to rush toward transforming could

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[134] Ford, Mullen, and Christ, "Effective Span of Command and Control," 23.

have potentially dramatic effects, both intended and unintended, as complexity theory suggests. One way to gain increased insight into possible changes is through the US Army Research Institute. Its studies into this topic during the late 1990s found only a weak correlation between effective command and control and organizational structure. Future studies should focus solely upon organizational structure and should result from not only interviews but also observations and other data collection methods aimed at exercises or ongoing combat operations.

Although future technology promises to provide capabilities far beyond what the Army currently possesses, the limiting factor will remain the human capacity to process and understand the information available. Recent studies have challenged the long-standing assertion that humans can process only a finite set of variables, a condition that leads to the belief in a hard upper limit upon span of control. Yet the studies suggesting that one can effectively control more than seven subordinates also argue that the means to break that ceiling is through proximity of subordinates or increased standardization of tasks, two requirements that directly contravene JOPsC's vision of future warfare.

An elimination of the corps echelon of command will not only affect the breadth of a component command's span of control, but it will also impact that command's requirements for personnel and equipment resources. As Mintzberg's organizational model suggests, a reduction within the middle line (deletion of the corps level) forces the strategic apex (the component commander) to compensate in some fashion. One technique is to assume a greater role through direct supervision, requiring the commander to become more involved in the actions of the subordinate divisions and brigades. Another is to increase standardization through an enlargement of the technostructure (component staff) to ensure compliance and accomplishment of tasks. As the cases of World War II armies and 1990s corps demonstrate, an increase in an echelon's responsibilities results in a corresponding increase in the size of the staff. Both coordinating mechanisms, though effective, also seem to run counter to JOpsC's image of small, decentralized headquarters.

With the Defense Department's emphasis on joint warfare, the Army must rely upon JOpsC's joint force attributes as a source of evaluation criteria for future reorganization initiatives. Current Army doctrine supports this multi-service approach, particularly FM 3-0, *Operations*. The capstone doctrinal manual, FM 3-0 makes clear the Army's responsibility to support the joint force commanders: "The Army's warfighting focus produces a full spectrum force that meets the needs of the joint force commanders (JFCs) in war, conflict, and peace. In war, Army forces form the nucleus of the joint force land component….In conflict, Army forces deploy quickly into an area of operations (AO) to deter adversaries….In peace, Army forces train for war."[135] In any list of criteria, however, effectiveness should always receive more weight than its oft-desired relative, efficiency. As the case studies indicate, past attempts at maintaining efficient organizations have usually adversely affected effectiveness in some manner. With regard to JOpsC's vision of decentralization, this study suggests that it should involve more than collaborative planning and shared knowledge, two expected results from improved technology. Another route to increased decentralization is shared vision and common understanding between commanders and staffs, byproducts of joint training and education, experiences that in no way rely upon technology.

Given the Army's requirement by law to provide the majority of sustainment in theater for the other services, the requirement for the Army's headquarters to be expeditionary may not be entirely possible as a result of the need for personnel to command and control sustainment operations rather than simply combat operations. As both World War II armies and 1990s corps illustrate, the requirement to provide subordinate units with administrative and logistics support carries a heavy price tag in the way of personnel and equipment. Combat operations in the ETO demonstrated the shortfalls in the manning levels within an army staff, as evidenced by the increasing personnel authorizations as the war progressed. Although a senior headquarters

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[135] Department of the Army, Field Manual 3-0, *Operations* (Washington, D.C.: USGPO, 2001), 1-3.

charged with administrative and logistics support can take part in expeditionary warfare, as both First Army and XVIII Airborne Corps ably confirmed off the shores of Normandy in 1944 and Haiti in 1994, respectively, that headquarters simply may not have the ability to remain as light as its subordinate formations because of its increased responsibilities.

The concern for unintended consequences as a result of structural changes and the need to maintain adequate personnel and equipment resources for a corps to command its subordinate formations effectively is not merely academic. In fact, a recent decision by the Army to consolidate its installations under one command may have already degraded the current US Army corps' capabilities. At the end of September 2003, all US Army garrisons (USAGs) left the command of the Army's major commands (MACOMs) and transferred to the Installation Management Agency (IMA).[136] In many instances, USAG personnel, although assigned duties related to installation activities, had also assumed (or been additionally assigned) operational roles within the corps headquarters on that post. With the transfer of personnel and equipment from the MACOMs to IMA, the corps headquarters lost both the personnel and equipment that had formerly been "double-slotted" against both garrison and corps staff duties. At a minimum, the Army must reassess the current personnel and equipment assigned to the corps headquarters and headquarters companies to ensure that the losses resulting from the MACOM/IMA transfer have not adversely affected a command or control capability.[137]

Although bordering on the obvious, it bears repeating that whatever path the Army chooses to take with respect to its organization, its doctrine must adequately and accurately describe the roles and responsibilities it envisions for its echelons of command. Despite the

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[136] Installation Management Agency, "IMA Q & A" [on-line]; available from http://www.ima.army.mil/q&a.asp; Internet; accessed 23 December 2003.

[137] An example of this "double-slotting" is the case of the former III Corps combat training center (CTC) officer. This officer was assigned to USAG in a table of distribution and allowances (TDA) billet, a position that ordinarily does not deploy. Yet this same officer was also a battle captain in the III Corps rear command post during the corps' 2002 Warfighter Exercise. The author departed Fort Hood before the scheduled reorganization took place, but if the transfer of the III Corps G3 training section to IMA occurred, several officers who had previously worked in the corps command posts are no longer able to serve in those positions, resulting in a shortfall for III Corps' deploying headquarters.

Soviet adage that cautions that "[o]ne of the serious problems in planning against American doctrine is that the Americans do not read their manuals nor do they feel any obligations to follow their doctrine," the US Army really does take its doctrine seriously.[138] As the case studies illustrate, the corps in the field over the past 50 years have generally discharged their duties and responsibilities in the manner described by the governing manuals. Pundits' commentary notwithstanding, the US Army is a doctrine-based organization, and its capstone manual states this in unambiguous terms: "The Army is a doctrine-based institution….Doctrine is an Army imperative. As such, we all need to read it, understand it, and apply its principles."[139] For this reason, its doctrine must reflect how it anticipates fighting today and in the future. Publishing a document that describes one approach while informally expecting a different approach will most likely result in confusion and headquarters that cannot operate in a modular fashion.

In keeping with the increasingly joint nature of Army operations, all future corps Warfighter exercises (WFXs) should focus upon training the corps as a JTF, not as a subordinate to a field army. Although not all training exercises for the corps staff should be JTF-oriented, WFXs, as the Army's premier training opportunity for the corps echelon of command, should serve to train the corps in JTF-related tasks and situations. Not only would this shift in training focus allow the corps to be better prepared to assume JTF missions, but the subordinate headquarters would also benefit from participating in joint, rather than Army-centric, exercises.

In the short term, the Army's corps headquarters should possess at least one Navy and one Marine officer assigned to the staff. At present, the SOCOORD and the accompanying US Air Force element provide the corps with the needed resident expertise related to those service and component capabilities. The addition of officers with expertise in the areas of naval surface and amphibious warfare would provide the corps with a better grounding in joint capabilities.

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[138] Billy Knowles, "Hold, Withdraw, or Advance: The Role of Tactical Airlift in the Equation," *Airpower Journal* (Summer 1989) [on-line]; available from http://www.airpower.maxwell.af.mil/airchronicles/apj/apj89/knowles.html; Internet; accessed 23 December 2003.

[139] Department of the Army, FM 3-0, inside cover.

Further, all corps should receive additional personnel and equipment resources to provide liaison teams to coalition partners' headquarters. Because not all potential coalition partners plan to keep pace with American transformation initiatives, it will fall to the corps to provide those assets if it wishes to maintain its decision superiority.

Historically, the corps echelon of command has proven itself capable of accomplishing missions that the governing doctrine both did and did not anticipate. In looking at corps operations over the past 50 years through the lens of theory, one can gain some understanding of why the corps has formed and functioned as it has. Although theory cannot ever provide a concrete prognostication of the future, it can offer insights into how events might transpire in an abstract manner. As decision makers and analysts look to restructuring the Army of the future, they would do well to keep theory at the forefront of any discussion of the merits and demerits of the corps level of command.
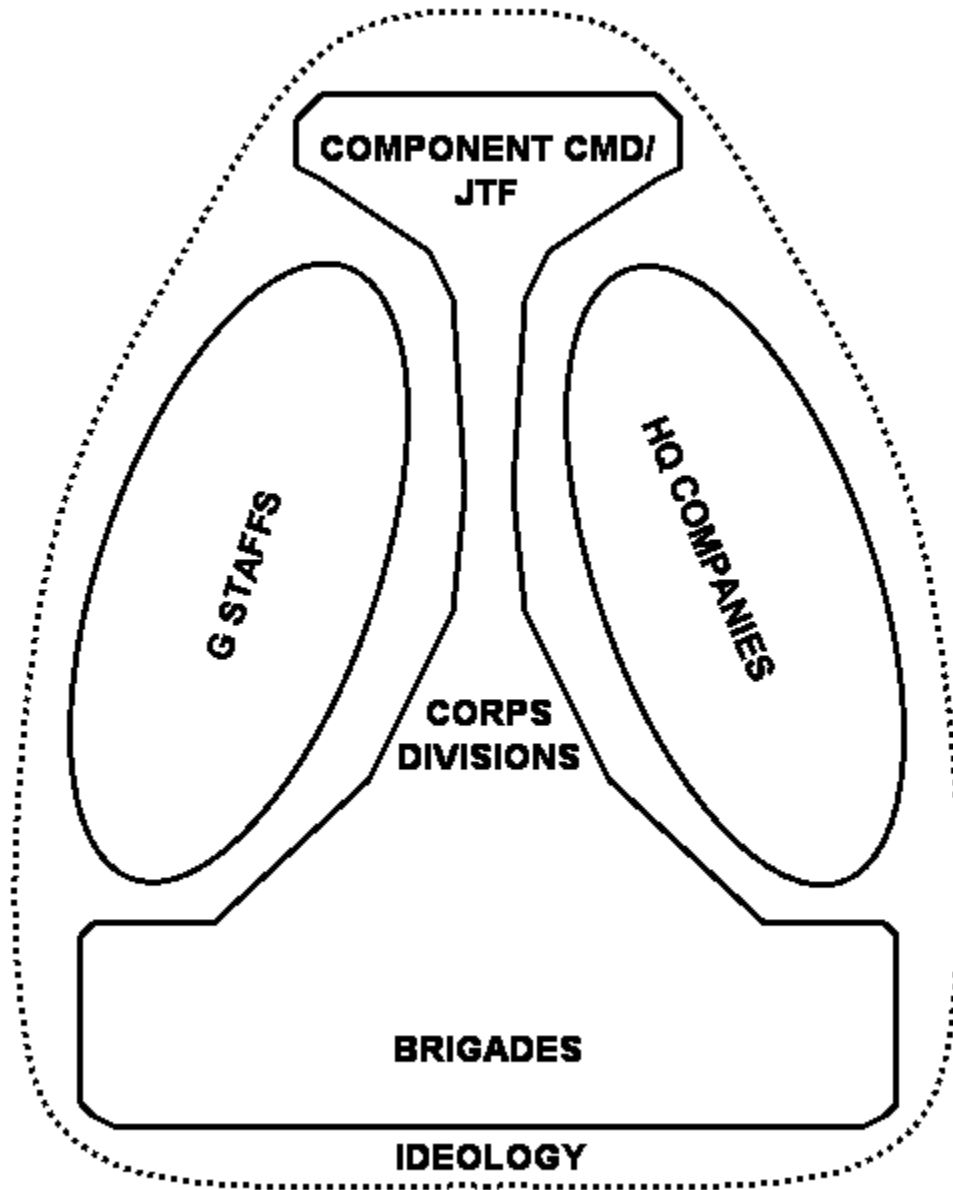
APPENDIX

FIGURE 1
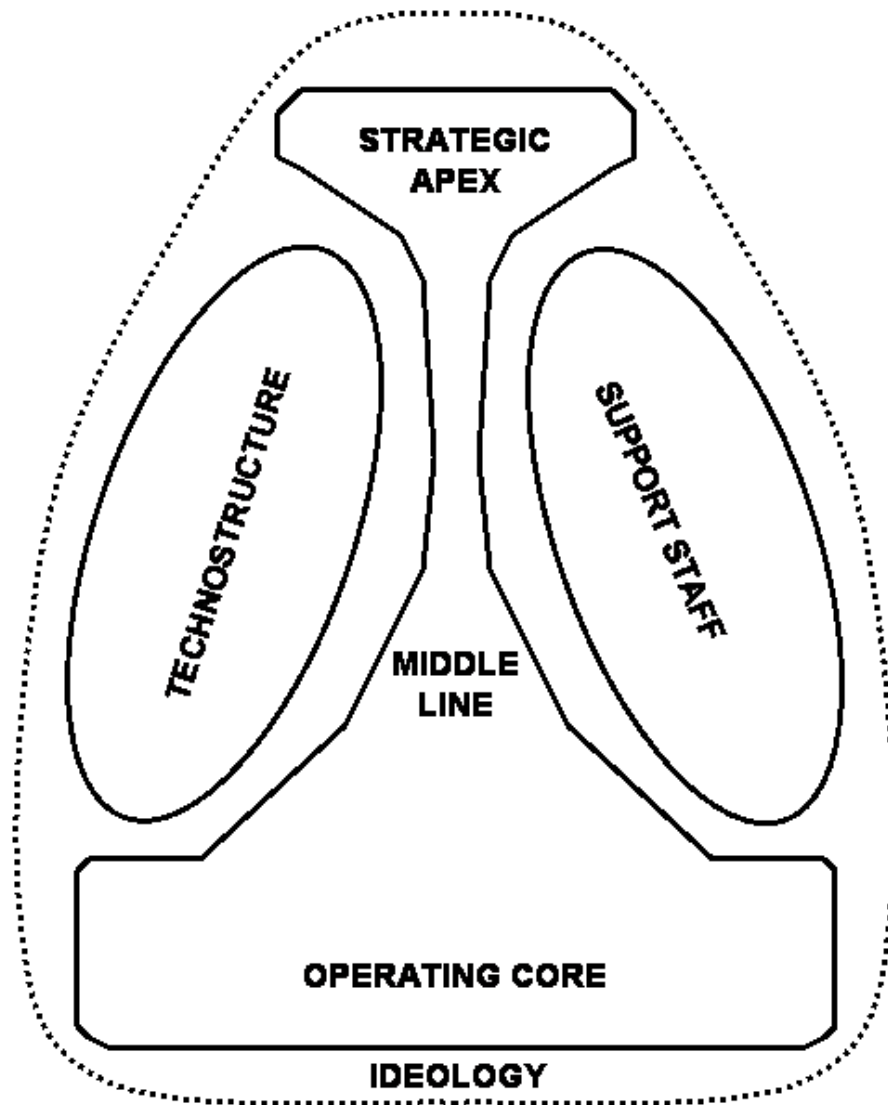
Six Basic Parts of the Organization[140]

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[140] Mintzberg, *Mintzberg on Management*, 99.
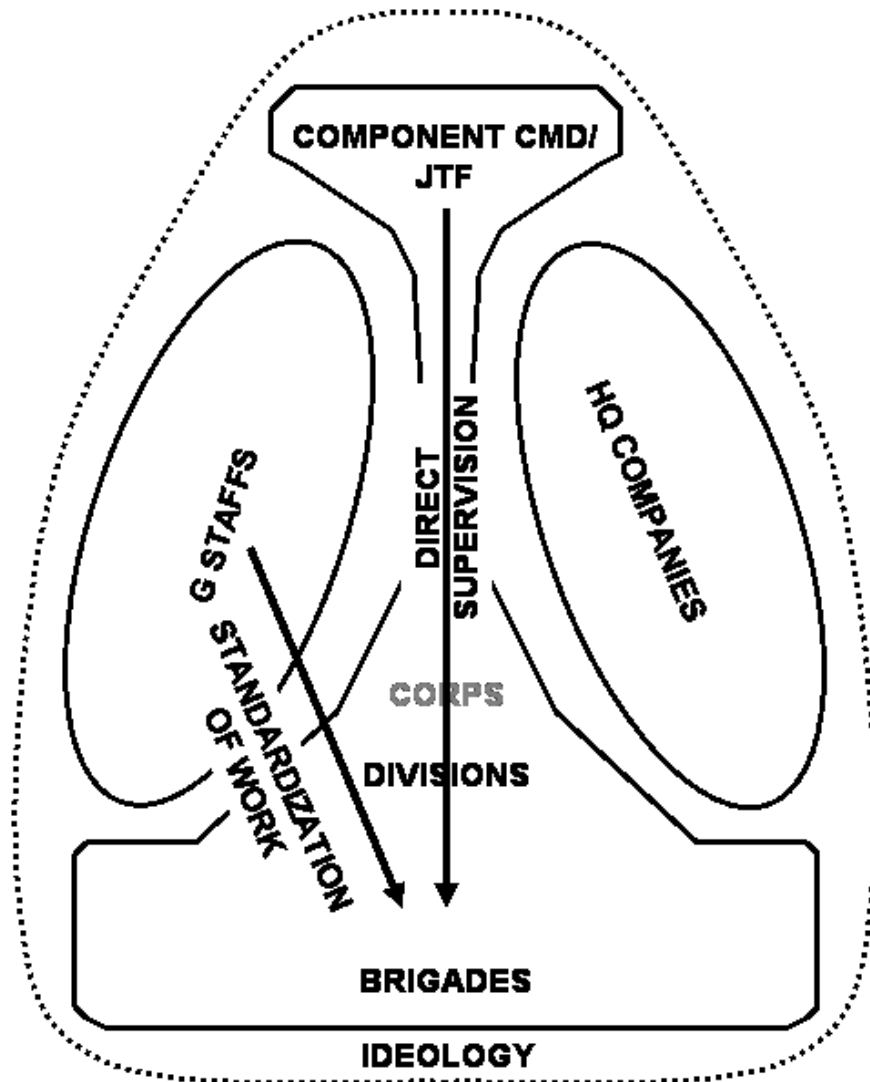
FIGURE 2

Army Organizations Overlaid upon Mintzberg's Model

FIGURE 3

Coordinating Mechanisms[141]

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[141] Mintzberg, *Mintzberg on Management*, 102.

BIBLIOGRAPHY

Battle Analysis, COBRA. Vol. 3, part 1. np., nd. (call number 940.541 B336).

Berlin, Robert. "U.S. Army World War II Corps Commanders: A Composite Biography." Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1989.

Blair, Clay. *The Forgotten War: America in Korea, 1950-1953*. New York: Anchor Books, 1989.

Burlas, Joe. "White: Army Needs Better Business Practices." U.S. Army Public Affairs News Release. (14 June 2001). [on-line].

Carland, John. *Combat Operations: Stemming the Tide, May 1965 to October 1966*. United States Army in Vietnam. Washington, D.C.: United States Government Printing Office, 2000.

Clancy, Tom, with General Fred Franks, Jr. *Into the Storm: A Study in Command*. New York: G.P. Putnam's Sons, 1997.

Cole, Ronald. "Grenada, Panama, and Haiti: Joint Operational Reform," *Joint Forces Quarterly* 20 (Autumn/Winter 1998-1999): 57-64.

Combined Arms Doctrine Directorate. "Unit of Employment (UE) Operations." Initial draft, version 2.1. Fort Leavenworth, KS: np, 2003.

Crane, Conrad. *American Airpower Strategy in Korea: 1950-1953*. Lawrence, KS: University Press of Kansas, 2000.

Department of the Army. Field Manual 3-0, *Operations*. Washington, D.C.: United States Government Printing Office, 2001.

_____. Field Manual 3-93, *The Army in Theater Operations*. Final draft. Fort Leavenworth, KS: n.p., 2003.

_____. Field Manual 6-0, *Mission Command: Command and Control of Army Forces*. Washington, D.C.: United States Government Printing Office, 2003.

_____. Field Manual 100-5, *Operations*. Washington, D.C.: United States Government Printing Office, 1986.

_____. Field Manual 100-5, *Operations*. Washington, D.C.: United States Government Printing Office, 1993.

_____. Field Manual 100-15, *Field Service Regulations: Larger Units*. Washington, D.C.: United States Government Printing Office, 1950.

_____. Field Manual 100-15, *Field Service Regulations: Larger Units*. Washington, D.C.: United States Government Printing Office, 1963.

_____. Field Manual 100-15, *Larger Units: Theater Army - Corps*. Washington, D.C.: United States Government Printing Office, 1968.

_____. Field Manual 100-15, *Larger Units: Theater Army - Corps*. Washington, D.C.: United States Government Printing Office, 1973.

_____. Field Manual 100-15, *Corps Operations*. Washington, D.C.: United States Government Printing Office, 1989.

_____. Field Manual 100-15, *Corps Operations*. Washington, D.C.: United States Government Printing Office, 1996.

_____. Field Manual 100-15-1, *Corps Operations, Tactics and Techniques*. Unedited coordinating draft. Fort Leavenworth, KS: n.p., 1991. Text-fiche.

_____. Field Manual 100-15-1, *Corps Operations, Tactics and Techniques*. Coordinating draft. Fort Leavenworth, KS: n.p., 1992. Text-fiche.

Department of Defense. *Conduct of the Persian Gulf War: Final Report to Congress*. Washington, D.C.: United States Government Printing Office, 1992.

_____. *Joint Operations Concepts*. Washington, D.C.: n.p., 2003. [on-line].

_____. Joint Publication 1-02, *Dictionary of Military and Associated Terms*. Washington, D.C.: United States Government Printing Office, 2003. [on-line].

Donnelly, Thomas, Margaret Roth, and Caleb Baker. *Operation Just Cause: The Storming of Panama*. New York: Lexington Books, 1991.

Dörner, Dietrich. *The Logic of Failure: Why Things Go Wrong and What We Can Do to Make Them Right*. Translated by Rita and Robert Kimber. New York: Metropolitan Books, 1996.

Dyer, George. *XII Corps: Spearhead of Patton's Third Army*. Baton Rouge, LA: XII Corps History Association, 1947.

Eckhardt, George. *Command and Control, 1950-1969*. Vietnam Studies. Washington, D.C.: United States Government Printing Office, 1974.

Epstein, Robert. "The Creation and Evolution of the Army Corps in the American Civil War." *Journal of Military History* 55 (January 1991): 21-46.

_____. *Napoleon's Last Victory and the Emergence of Modern War*. Lawrence, KS: University Press of Kansas, 1994.

Ford, J. Patrick, William Mullen III, and Richard Christ. "Effective Span of Command and Control by Echelon in Training and Operational Environments." ARI Research Note 99-03. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, 1998.

_____. "New Research on Span of Command and Control: Implications for Designing Army Organizations." ARI Research Note 99-09. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, 1998.

Gehring, Stephen. *From the Fulda Gap to Kuwait: U.S. Army, Europe and the Gulf War*. Washington, D.C.: United States Government Printing Office, 1998.

General Board. "Reports of the General Board, United States Forces, European Theater: An Analysis of U.S. Military Activities in Europe, 1944-1945." CD-ROM. U.S. Army Center of Military History, 8-02.

Gulick, Luther. "Notes on the Theory of Organization." In *Papers on the Science of Administration*, ed. Luther Gulick et al., 3-45. New York: Institute of Public Administration, 1937.

Graicunas, V.A. "Relationship in Organization." In *Papers on the Science of Administration*, ed. Luther Gulick et al., 183-187. New York: Institute of Public Administration, 1937.

Greenfield, Kent Roberts, Robert R. Palmer, and Bell Wiley. *The Army Ground Forces: The Organization of Ground Combat Troops*. United States Army in World War II. Washington, DC: United States Government Printing Office, 1987

Herbert, Paul. *Deciding What Has to Be Done: General William E. DuPuy and the 1976 Edition of FM 100-5, Operations*. Leavenworth Papers Number 16. Washington, D.C.: United States Government Printing Office, 1988.

Historical Section, Army War College. *Order of Battle of the United States Land Forces in the World War, American Expeditionary Forces: General Headquarters, Armies, Army Corps, Services of Supply, and Separate Forces*. Washington, D.C.: United States Government Printing Office, 1937.

Hogan, David, Jr. *A Command Post at War: First Army Headquarters in Europe, 1943-1945*. Washington, D.C.: United States Government Printing Office, 2000.

Installation Management Agency. "IMA Q&A" [on-line].

Kiel, L. Douglas. *Managing Chaos and Complexity in Government: A New Paradigm for Managing Change, Innovation, and Organizational Renewal*. San Francisco: Jossey-Bass Publishers, 1994.

Klein, Gary. *Sources of Power: How People Make Decisions*, rev. ed. Cambridge, MA: MIT Press, 1999.

Knowles, Billy. "Hold, Withdraw, or Advance: The Role of Tactical Airlift in the Equation." *Airpower Journal* (Summer 1989) [on-line].

Kretchik, Walter, Robert Baumann, and John Fishel. *Invasion, Intervention, "Intervasion": A Concise History of the U.S. Army in Operation Uphold Democracy*. Fort Leavenworth: U.S. Army Command and General Staff College Press, 1998.

Macgregor, Douglas. *Breaking the Phalanx: A New Design for Landpower in the 21st Century*. Westport, CT: Praeger, 1997.

Military Intelligence Division. *To Bizerte with the II Corps, 23 April 1943-13 May 1943*. American Forces in Action Series. Washington, D.C.: War Department, 1943.

Miller, George. "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information." *The Psychological Review* 63 (March 1956): 81-97.

Mintzberg, Henry. *Mintzberg on Management: Inside Our Strange World of Organizations*. New York: The Free Press, 1989.

_____. *Structure in Fives: Designing Effective Organizations*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1983.

Office of the Assistant Secretary of Defense. Memorandum. Subject: OPERATION UPHOLD DEMOCRACY – An Assessment of Intelligence and Communications Systems and Networks (U), 25 January 1996.

Orenstein, Harold, Doctor. Informal discussion with author, 18 September 2003. Fort Leavenworth, Bell Hall.

Pagonis, William. *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*. Boston: Harvard Business School Press, 1992.

Reynolds, Paul. *A Primer in Theory Construction*. Boston: Allyn and Bacon, 1971.

Romjue, John. *The Army of Excellence: The Development of the 1980s Army*. TRADOC Historical Monograph Series. Fort Monroe, VA: Office of the Command Historian, U.S. Army Training and Doctrine Command, 1993.

Roscoe, Edwin, and Dorman Freark. *Organization for Production: An Introduction to Industrial Management*, 5th ed. Homewood, IL: Richard D. Irwin, Inc., 1971.

Scales, Robert, Jr. *Certain Victory: United States Army in the Gulf War.* Washington, D.C.: United States Government Printing Office, 1993.

Schoomaker, Peter, General. "Remarks at Eisenhower Luncheon." Association of the United States Army Convention, 7 October 2003. [on-line].

VII Corps. *Mission Accomplished: The Story of the Campaigns of the VII Corps.* np., nd.

Stanton, Shelby. *World War II Order of Battle*. New York: Galahad Books, 1991.

Swain, Richard. *"Lucky War": Third Army in Desert Storm.* Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 1994.

Waldrop, M. Mitchell. *Complexity: The Emerging Science at the Edge of Order and Chaos*. New York: Touchstone, 1993.

War Department. Field Manual 100-15, *Field Service Regulations: Larger Units*. Washington, D.C.: United States Government Printing Office, 1942.

Wass de Czege, Huba, and Richard Sinnreich. "Conceptual Foundations of a Tranformed U.S. Army." The Land Warfare Papers, Number 40. Arlington, VA: The Institute of Land Warfare, 2002.

Weigley, Russell F. *History of the Unites States Army*, Enlarged ed. Bloomington, IN: Indiana University Press, 1984.

Wilson, John B. *Armies, Corps, Divisions, and Separate Brigades*. Army Lineage Series. Washington, D.C.: United States Government Printing Office, 1999.

Worley, D. Robert. "W(h)ither Corps?" Carlisle, PA: Strategic Studies Institute, 2001.

Yates, Lawrence. *Power Pack: U.S. Intervention in the Dominican Republic, 1965-1966*. Leavenworth Papers Number 15. Washington, D.C.: United States Government Printing Office, 1988.

Zanini, Michelle, and Jennifer Taw. "The Army and Multinational Force Compatibility." Santa Monica, CA: Rand Arroyo Center, 2000.